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Chicago Airport System FORECAST

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Landrum&Brown

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I. EXECUTIVE SUMMARY

The Chicago Airport System (System) experienced another record year in 1997, handling a combined 80,368,266 passengers. It was the second-largest airport system in the world behind the Port Authority of New York and New Jersey. The System, owned and operated by the Chicago Department of Aviation (DOA), is comprised of Chicago-O'Hare International Airport (O'Hare), once again the world's busiest airport, Chicago Midway Airport (Midway) and Merrill C. Meigs Field (Meigs). O'Hare accounted for approximately 88 percent of the System's traffic in 1997, while Midway claimed 12 percent and Meigs had less than 1 percent.

The overall size and complexity of the System requires the development of reliable aviation forecasts to assist in the long-range planning necessary to maintain the highest levels of service to the traveling public. This report presents a new comprehensive System Forecast, predominantly covering O'Hare and Midway traffic, which was developed to enable the City of Chicago and the DOA to establish airport policy and plan for the aviation facilities which will be needed in the short term and well into the 21st century.

Two primary factors drive the need for a new, comprehensive forecast of aviation activity in the System:

- Airport revenue bond issues that require the forecast period for aviation activity and financial projections to go beyond 2005 are anticipated in 1998 for both O'Hare and Midway.

- Several major aviation developments have occurred since 1992 or are anticipated to occur within the next five years, including the proliferation of international activity, the liberalization of worldwide open skies agreements and the establishment of airline alliances and code sharing agreements.

This report provides forecast aviation activity over a 15-year horizon (through 2012) and is presented in five-year increments, with 1997 as the base year. Given the dynamic nature of the industry, the 15-year horizon was chosen as a reasonable period that represents the foreseeable future. Debt rating agencies, such as Moody's, Standard & Poor's and Fitch, generally rely upon this range to judge the risks associated with airport development projects. Forecasts beyond this range introduce unacceptable risks and greater uncertainty.

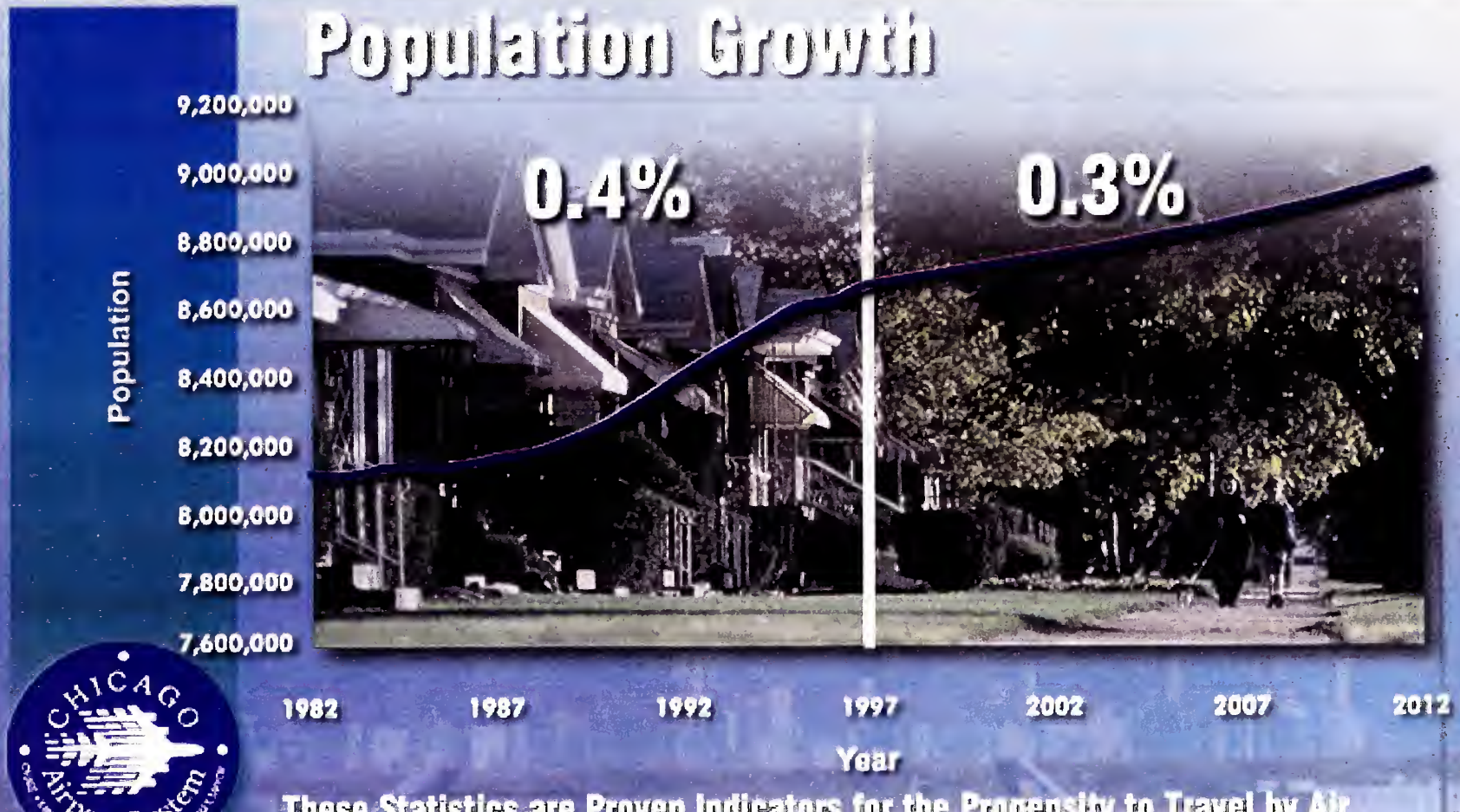
A. DEMOGRAPHICS OF THE CHICAGO REGION

The region served by the airports in the System is referred to as the Air Trade Area or the Chicago Region. This region is defined more precisely in Chapter II. The demographic and economic factors underlying aviation travel demand in the Chicago Region indicate a stable, mature population base and economic market. The key factors of population, income and employment are all expected to show continued growth, but at a more moderate rate than experienced during the past 15 years.

The National Planning Association Data Services, Inc. (NPA, which is further discussed in Chapter II), an independent, non-partisan organization in Washington, D.C., projects the Chicago Region's population to grow at an average annual compound growth rate of 0.3 percent from 1997 to 2012 (see **Exhibit I-1**). NPA forecasts employment in the Chicago Region to grow at an average annual compound growth rate of 0.6 percent from 1997 to 2012. Based on this rate, over 523,000 new jobs will be created in the Chicago Region by 2012.

CHICAGO AIRPORT SYSTEM

Population is Expected to Grow at a Diminishing Rate



These Statistics are Proven Indicators for the Propensity to Travel by Air

Source: National Planning Associates

Total personal income in the Chicago Region is forecast to increase at an average annual compound rate of 1.8 percent from 1997 through 2002 and 1.4 percent from 2002 to 2012 (see **Exhibit I-2**). The Chicago Region's per capita personal income (PCPI) is expected to grow at an average annual compound rate of 1.6 percent from 1997 to 2002, and at an annual rate of 1.2 percent from 2002 to 2012.

Employment is expected to continue its shift toward the service and trade sectors; both have a high propensity toward job-related travel. The large number of corporate headquarters in the Chicago Region, as well as vigorous convention, trade show and corporate activity, are evidence of the strong and stable economic climate that stimulates domestic and international air travel. Tourism, drawing national and international recognition, is traditionally a valuable resource and contributor to the area's economic development.

B. REGIONAL AIR TRAFFIC AND SERVICE

The Chicago Region is the nation's largest mid-continent catchment area. Its location along the heavily traveled east/west air routes, its proximity to the center of the United States and its large population base make it a natural location for airline hubbing operations. The nation's two largest carriers, United Airlines and American Airlines, operate hubs at O'Hare. The Chicago Region's large economic and demographic base provides the strong origin and destination (O&D) demand that supports extensive service to a large number of domestic and international destinations. The combination of these factors has resulted in an extremely high level of air service from O'Hare and Midway airports.

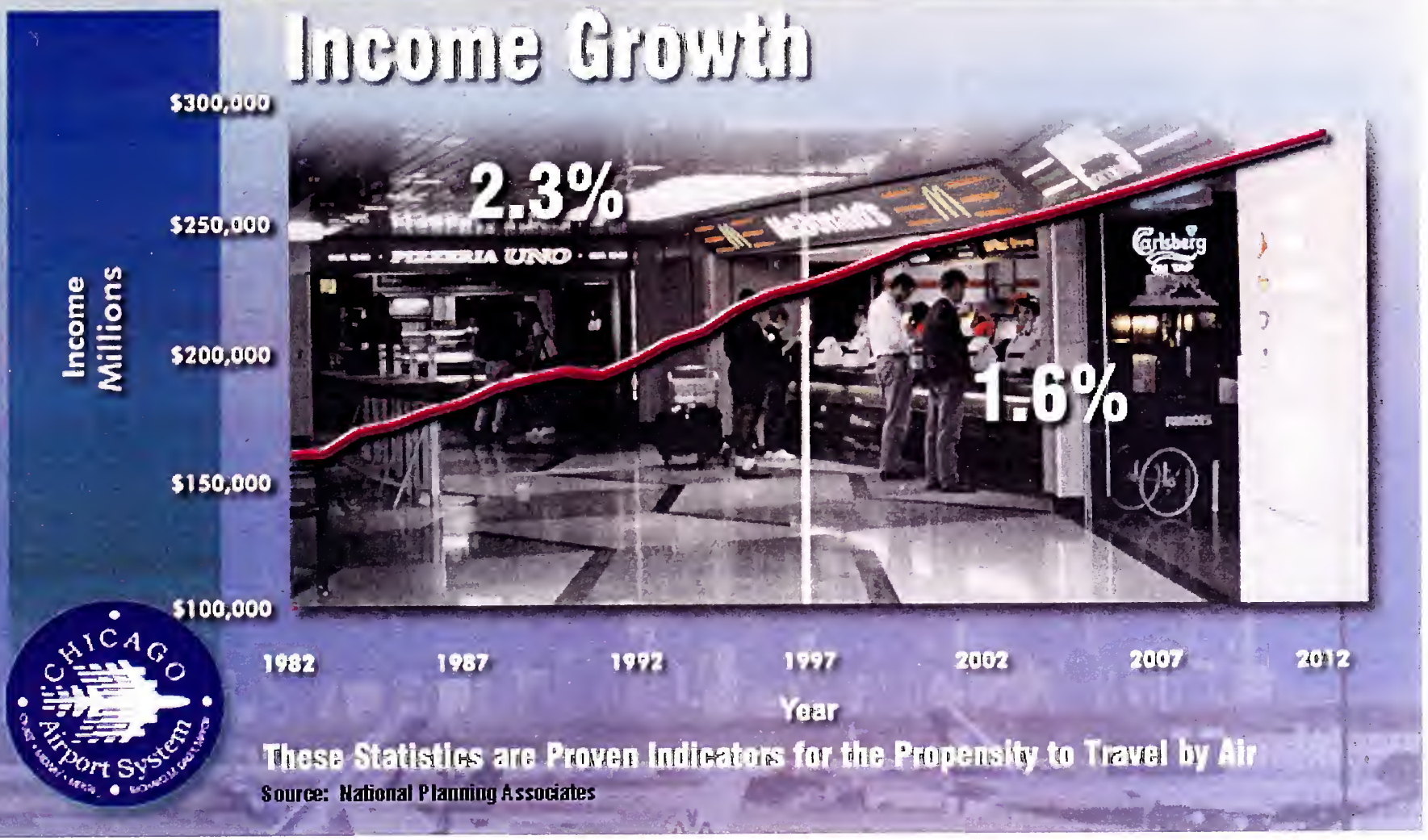
As a major connecting hub for two of the world's largest air carriers, O'Hare serves as an important international gateway to Europe, Canada and Mexico and has significant potential to grow in all international markets, particularly the Pacific Rim and South America. O'Hare has service provided by 69 airlines, including 11 of the 13 domestic airlines classified by the United States Department of Transportation (USDOT) as "Major Carriers." From 1962 through 1997, O'Hare has held the title of "the world's busiest airport," as measured by both total passengers and total aircraft operations. As of June 1998, nonstop service to 126 domestic airports and 41 international airports was available from O'Hare.

Midway complements O'Hare by offering service by 13 airlines, including four Major Carriers. Midway's strength has come from the carriers that generally provide low-fare, point-to-point service to O&D passengers. As of June 1998, nonstop service to 42 domestic airports was available from Midway.

International service is the fastest growing segment of the U.S. commercial airline industry, and the Chicago Region is well-positioned to benefit from it. While the U.S. domestic passenger market has shown signs of maturity, the international market is on the threshold of great expansion. Over the last 10 years, the Chicago Region's domestic O&D enplanements have increased by 3.5 percent per annum. Since 1994, the first full year of operation for the new International Terminal at O'Hare, international enplanements have increased at the annual rate of 8.6 percent. The percentage of O'Hare's total commercial enplanements represented by international enplanements rose from 5.8 percent in 1978 to 11.1 percent in 1997.

CHICAGO AIRPORT SYSTEM

Total Personal Income Will Also Grow at a Diminishing Rate



C. METHODOLOGY

Several industry-standard methods are used in this forecast to predict future activity levels for the different components of air transportation demand--primarily linear regression, trend analyses, time series analysis, economic modeling and heuristic examination, or the application of expert opinion. The forecast of regional domestic O&D enplanements employs the most widely used forecasting technique in industrial and social science research—linear regression. It has been successfully used and industry tested at Seattle-Tacoma International Airport, Los Angeles International Airport, Detroit Metropolitan Wayne County Airport and others.

As a starting point for analysis, this forecast assumes that O'Hare will remain the predominant airport for international air service in the Chicago Region. (International enplanements at Midway and Meigs accounted for less than 1.0 percent of historical volumes.) O'Hare will remain a dual-airline hub, and Midway will remain predominately an O&D airport. Airline yield will continue to decline on a constant dollar basis.

The 15-year forecast is an unconstrained demand forecast; that is, it is not influenced by factors related to aviation capacity. As such, airport infrastructure, air traffic control technology, aircraft manufacturing needs and the regulatory environment are not reflected herein.

D. THE CHICAGO AIRPORT SYSTEM 15-YEAR FORECAST (1997 to 2012)

Total enplaned passengers at O'Hare are forecast to increase from 34.8 million in 1997 to 45.1 million in 2012, an average annual increase of 1.7 percent. Midway enplanements are projected to grow from 4.7 million in 1997 to 8.5 million in 2012, an average rate of 4.0 percent. Total System enplaned passengers are forecast to reach 53.6 million in 2012 as presented on **Exhibit I-3.**

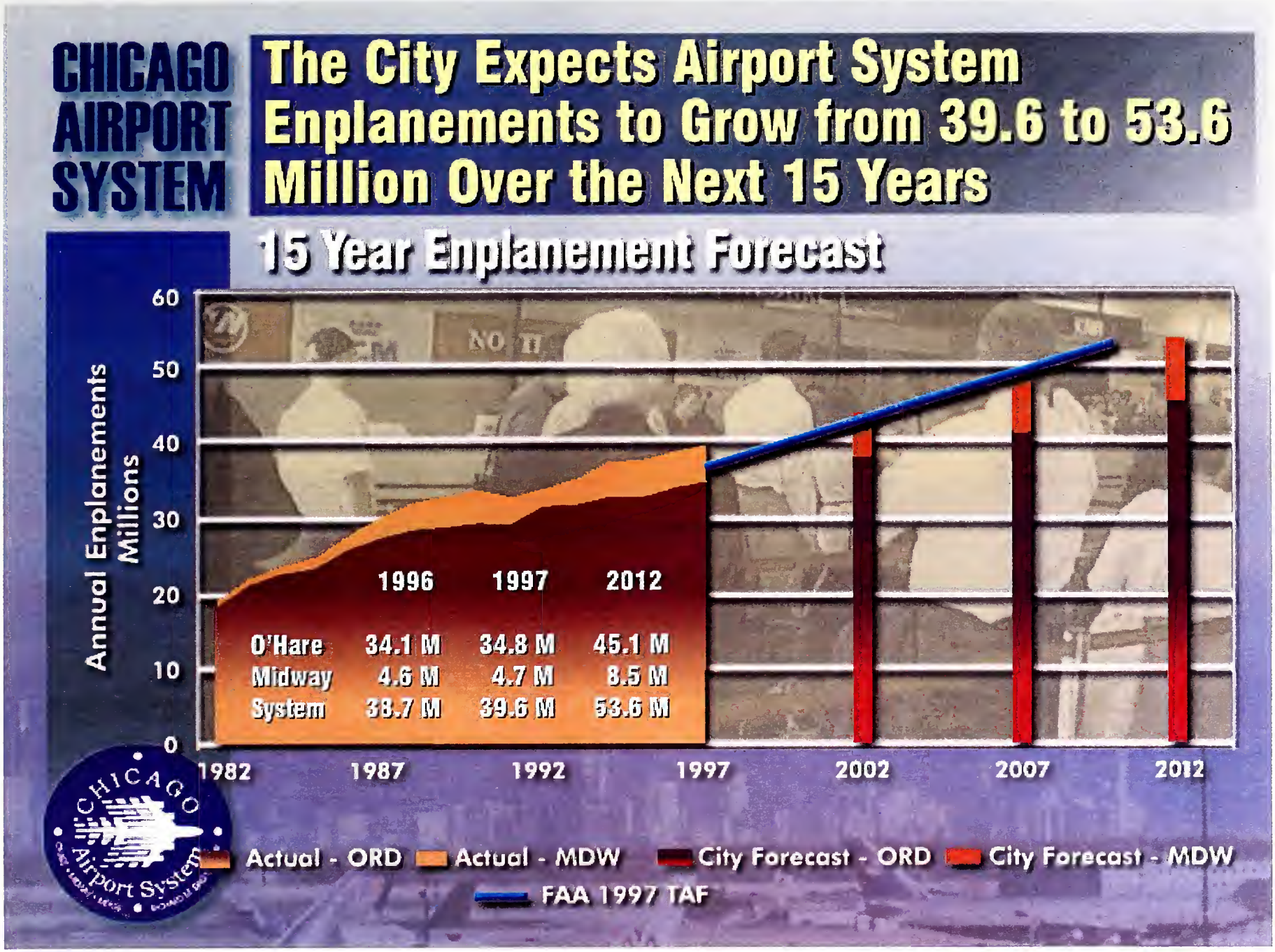
Aircraft operations at O'Hare are forecast to increase from 883,761 in 1997 to 982,500 in 2012, an average annual increase of 0.7 percent. Midway operations are projected to grow from 265,572 in 1997 to 314,760 in 2012, an average annual rate of 1.1 percent. Total System operations are forecast to increase from 1.2 million in 1997 (includes Meigs) to 1.3 million in 2012. Operations are projected to grow at a slower rate than enplanements due to the increase in average aircraft size in the future fleet, evidenced in the new aircraft on order by the airlines serving Chicago airports. Historical and forecast operations are presented on **Exhibit I-4**

1. Domestic O&D Enplanements (Chapter IV)

Domestic O&D enplanements in the Chicago Region are forecast to increase from 17.8 million in 1997 to 25.2 million in 2012, an average annual increase of 2.4 percent. For the previous 26 years, from which the forecast was derived, the average annual growth rate was 4.0 percent.

2. O&D Share by Airport (Chapter V)

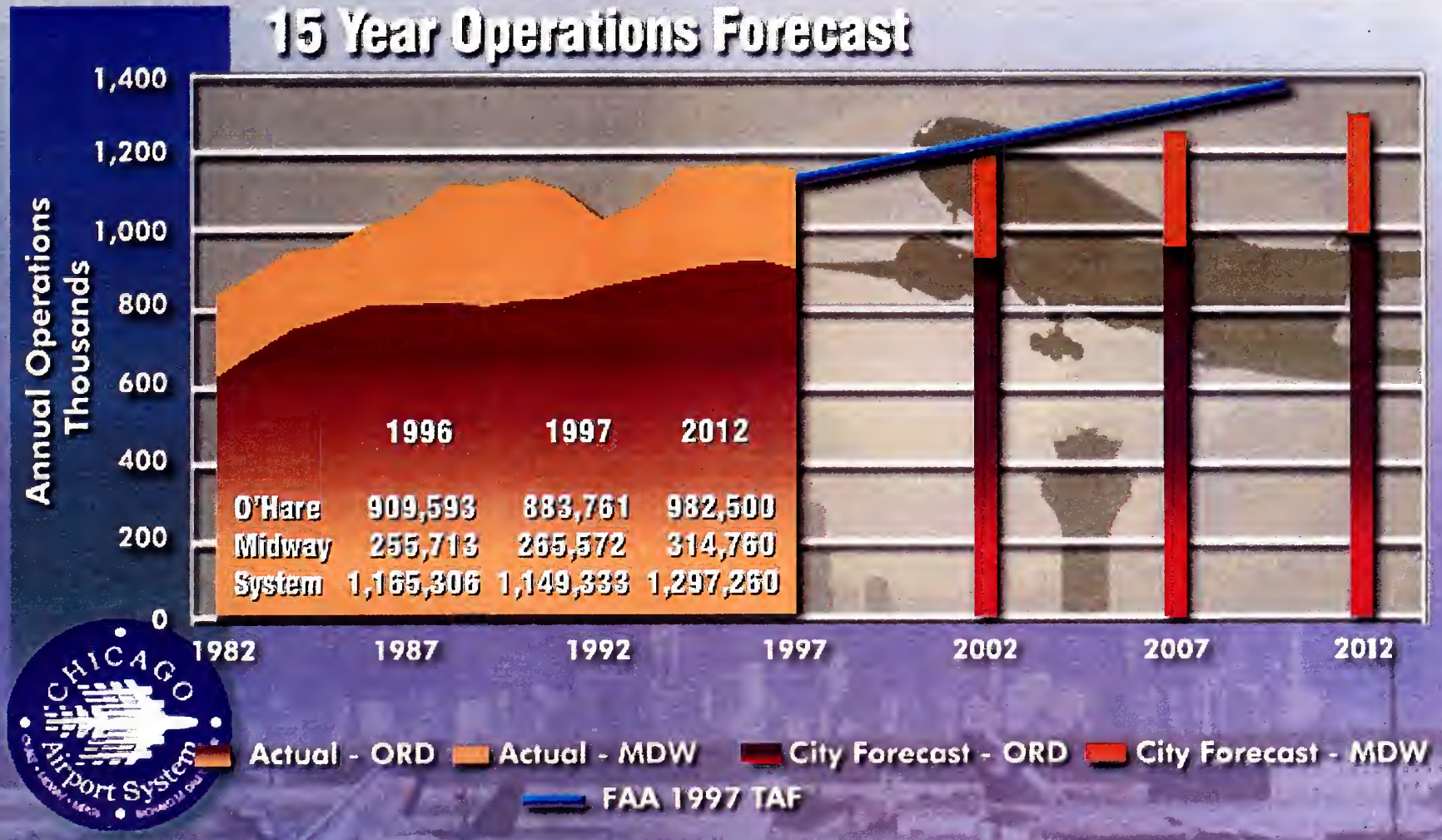
O'Hare's domestic O&D enplanement demand is expected to increase from 13.6 million in 1997 to 18.1 million in 2012. The Midway forecast indicates a growth from 4.1 million O&D enplanements in 1997 to 7.0 million in 2012. These increases represent a 1.9 percent average annual growth rate at O'Hare and 3.7 percent average annual average growth rate at


CHICAGO AIRPORT SYSTEM
The City Expects Airport System Enplanements to Grow from 39.6 to 53.6 Million Over the Next 15 Years
15 Year Enplanement Forecast
Annual Enplanements Millions
60
50
40
30
20
10
0
1982
1987
1992
1997
2002
2007
2012
1996
1997
2012
O'Hare 34.1 M 34.8 M 45.1 M
Midway 4.6 M 4.7 M 8.5 M
System 38.7 M 39.6 M 53.6 M
Actual - ORD
Actual - MDW
City Forecast - ORD
City Forecast - MDW
FAA 1997 TAF

CHICAGO AIRPORT SYSTEM

To Serve this Enplanement Forecast, Aircraft Operations are Expected to Grow From 1.15 to 1.30 Million Over the Next 15 Years

15 Year Operations Forecast



Midway. Although Midway's growth rate is higher than O'Hare's, by the end of the forecast period, O'Hare is projected to serve 72 percent of the region's domestic O&D passengers.

3. Domestic Connecting Enplanements (Chapter VI)

Connecting passengers are expected to grow at average annual rates of 0.7 percent through 2002 and 1.1 percent from 2002 to 2012, averaging 1.0 percent annually throughout the forecast period. O'Hare, because of its proximity to the nation's largest mid-continent catchment area and its role as a connecting hub for United and American airlines, will maintain a share of connecting enplanements at or exceeding 93.2 percent of the Chicago Region's total throughout the forecast period. Total connecting enplanements are projected to grow at a slower rate than O&D enplanements because certain markets will justify nonstop service in the future (i.e., Boston to Los Angeles) that required making connections historically. Although connecting enplanements are projected to decrease as a percentage of total domestic enplanements during the forecast period, from 50.5 percent in 1997 to 45.4 percent in 2012, connecting passengers will remain an important element of aviation activity in the Chicago Region.

4. International Enplanements (Chapter VII)

The total international enplanement forecast for the Chicago Region shows international enplanements increasing from 3.9 million in 1997 to 7.5 million in 2012, an average annual growth rate of 4.5 percent. Non-Canadian international enplanements will increase to 6.0 million by 2012, and Canadian enplanements are anticipated to total 1.5 million in 2012.

The growth rate for forecast total international enplanements averages 4.5 percent for the period 1997 through 2012; this compares to a 2.4 percent average annual growth rate projected for domestic O&D enplanements over the same period.

Latin American enplanements are forecast to increase from 493,000 in 1997 to 894,000 in 2012, an average annual growth rate of 4.0 percent. Atlantic enplanements, which include Europe, Middle East and Africa, are projected to grow at an average annual rate of 5.0 percent from 1.9 million in 1997 to 4.1 million in 2012. Traffic to the Pacific region, the fastest growing international region in recent years (17.1 percent annually between 1991 and 1997), is projected to continue growing during the forecast period at a 7.5 percent average rate. Pacific enplanements are expected to increase from 332,000 in 1997 to almost one million in 2012.

5. Air Cargo (Chapter VIII)

The total tonnage for all components of O'Hare's air cargo is forecast to expand over the 1997 to 2002 period at a 3.7 percent average annual growth rate; over the long-term forecast horizon (1997 - 2012) at 3.2 percent. The forecast of total air cargo at Midway will track at an estimated 1.0 percent average annual growth rate in the short term and increase moderately to approximately 1.4 percent over the 1997 to 2012 forecast horizon.

6. Aircraft Operations (Chapter IX)

Total annual aircraft operations for the System increased from 1,192,983 operations in 1990 to 1,201,404 operations in 1997, an annual average compound growth rate of 0.1 percent. Total annual operations for the future System are forecast to increase to 1,297,260 operations in 2012. This represents an average annual increase of approximately 0.5 percent over the forecast period.

Total operations are comprised of domestic air carrier, domestic commuter, international, all cargo, general aviation and military operations. All of these operations are forecast separately. Except for general aviation and military (reflecting general trends and partly the closing of Meigs and the military base at O'Hare), all categories increase over the forecast period.

Total annual operations at O'Hare are forecast to increase to 982,500 operations in 2012, an average annual increase of 0.7 percent over the forecast period. Total enplanements at O'Hare are projected to increase at an average annual rate of 1.7 percent. This enplanement growth will be accommodated by a smaller increase in operations due to an increase in average aircraft gauge (average seats per departure) and a small increase in average load factor. The larger future aircraft fleet is evidenced not only by the commuter carriers introducing regional jets into their fleet, but particularly by the air carriers' orders for larger, quieter, and more efficient aircraft.

Total annual operations at Midway are forecast to increase to 314,760 operations in 2012, an average annual increase of 1.1 percent over the forecast period. As is projected for O'Hare, the 4.0 percent average annual growth in enplanements will be accomplished by a smaller increase in operations due to increases in aircraft size and a minimal increase in average load factor.

II. ECONOMIC BASE FOR AIR TRANSPORTATION DEMAND

The region served by the airports in the System is referred to as the Air Trade Area. For this forecast, the area is comprised of 13 counties in three states: Cook, DeKalb, DuPage, Grundy, Kane, Kankakee, Kendall, Lake, McHenry and Will counties in Illinois; Lake and Porter counties in Indiana; and Kenosha County in Wisconsin. This Air Trade Area is the geographic region defined by the United States Department of Commerce, Bureau of the Census, as the Chicago Consolidated Metropolitan Statistical Area, or Chicago CMSA. This 13-county Air Trade Area, also referred to as the Chicago Region, is shown in **Exhibit II-1**.

A. FORECAST FACTORS AND SOURCES

Air transportation demand served by the System stems from the Chicago Region's demographic and economic factors. Demographics are used to analyze the distribution and density of people living within the Chicago Region. Such economic factors as employment and per capita personal income (PCPI) help evaluate the production, distribution and consumption of wealth and contributions to the Chicago Region's commerce. The economic factors that can be categorized as *socioeconomic*--tourism, conventions and corporate headquarters--are also assessed for their influence on stimulating air transportation demand. When combined, all of these statistics of the Air Trade Area are used to determine the current strength of the Chicago Region's economy and are the primary factors used to forecast origin and destination air traffic demand.

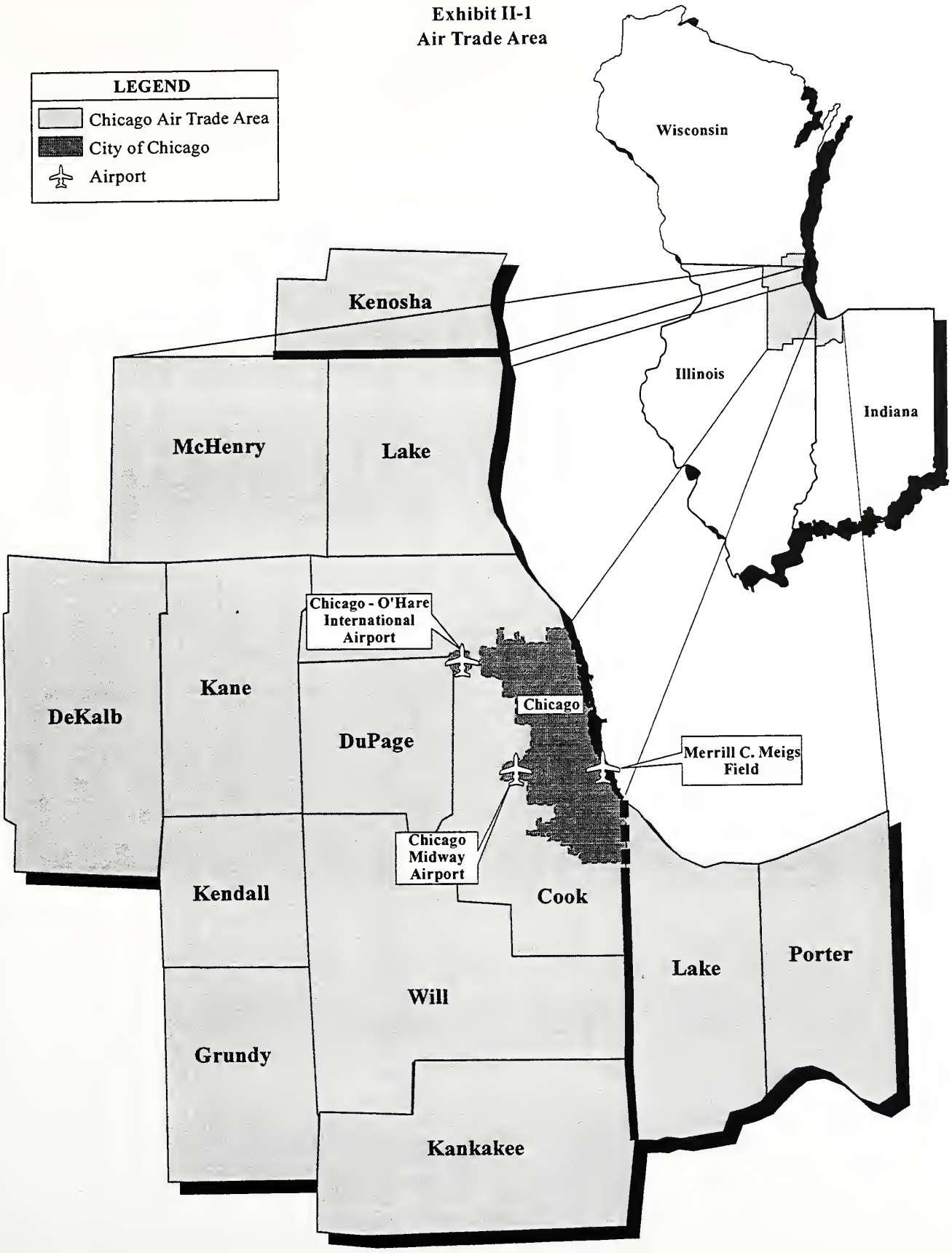
The data used in this report on historical and forecast population, employment, personal income and PCPI was obtained from National Planning Association Data Services, Inc. (NPA), an independent, non-partisan organization in Washington, D.C. NPA was founded in 1952 to provide the federal government with reliable forecasts of economic and demographic data used to plan the national interstate highway system. Its clients include such public and private organizations as real estate and urban planning firms, public utilities, federal, state and local governments, chambers of commerce and colleges and universities. NPA obtains historical data from such government sources as the U.S. Department of Labor and the U.S. Department of Commerce. NPA also conducts its own independent research. It uses its own mathematical models of demographic and economic conditions within each U.S. county for forecasting realistic, independent estimates of future conditions. Although there are a number of reputable economic and demographic research organizations, NPA data was selected for use in this forecast based on its record of providing reliable information in similar previously prepared reports. In comparison to the forecasts provided by other well-known research organizations, the variances between these and the NPA forecasts are typically minimal.

Income items are stated in 1997 constant dollars.

B. AIR TRADE AREA POPULATION

The strength of the Chicago Region can be partly assessed by comparing its average compound growth rate of demographic and economic variables with those of the Midwest and the nation. Population in the Chicago Region has increased at an average annual compound growth rate of 0.4 percent from 1982 through 1997 (see **Table II-1**), equivalent to that in the Midwest (Midwest), which is comprised of the states of Illinois, Indiana, Michigan, Ohio and Wisconsin. The national average for this period was 1.0 percent. Despite the overall population migrations to the Sunbelt regions of the South and West during this time, the Air Trade Area remains stable.

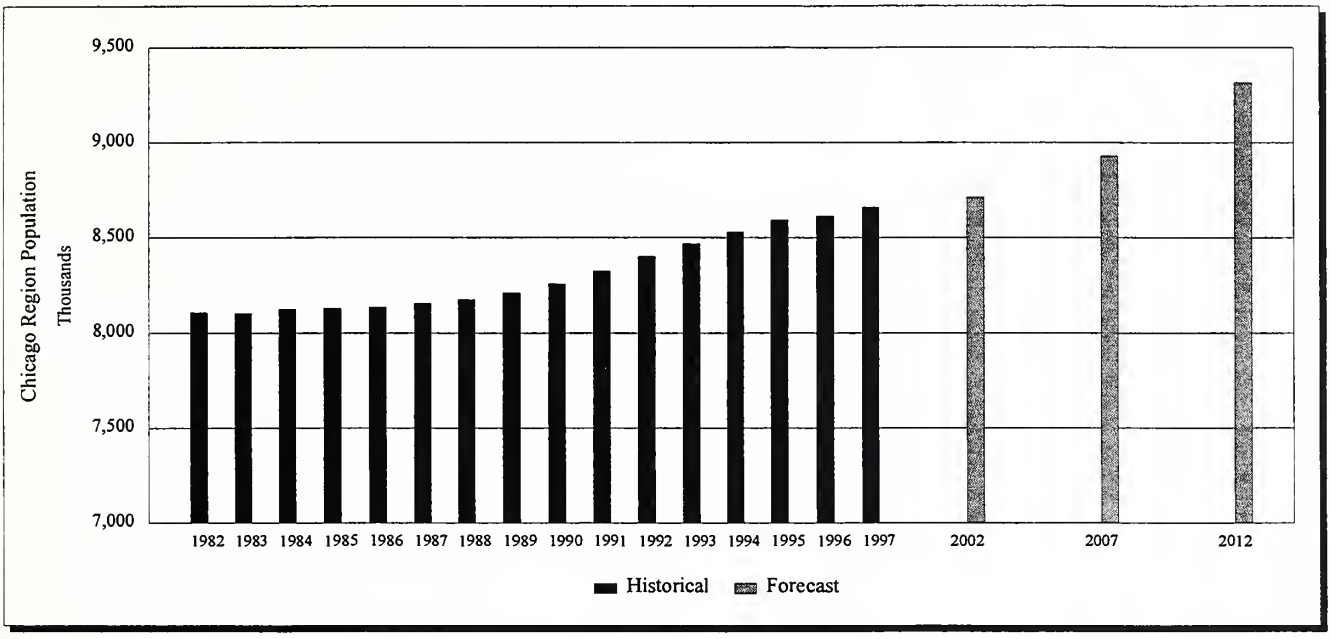
Exhibit II-1
Air Trade Area



Source: Landrum & Brown, Inc.

Not To Scale

Table II-1
Chicago Airport System Forecast
Population Forecast



	Population (1)		
Year	Chicago Region (2)	Midwest (3)	United States
1982	8,107,690	41,492,600	231,664,910
1983	8,103,840	41,366,050	233,792,500
1984	8,126,560	41,393,330	235,825,350
1985	8,129,630	41,418,010	237,924,120
1986	8,135,140	41,455,100	240,133,290
1987	8,156,500	41,589,730	242,289,560
1988	8,174,100	41,720,980	244,499,600
1989	8,210,340	41,872,550	246,819,660
1990	8,257,100	42,079,280	249,403,450
1991	8,325,180	42,376,790	252,137,970
1992	8,399,900	42,684,970	255,038,740
1993	8,467,340	42,959,850	257,800,490
1994	8,529,330	43,192,930	260,349,840
1995	8,592,330	43,456,430	262,755,260
1996	8,613,430	43,567,150	265,160,020
1997	8,659,570	43,764,180	267,878,640
2002	8,746,550	44,490,870	280,385,890
2007	8,848,420	45,221,880	293,020,910
2012	8,992,360	46,133,210	306,597,980
	Average Annual Compound Growth Rates		
1982 - 1997	0.4%	0.4%	1.0%
1997 - 2002	0.2%	0.3%	0.9%
2002 - 2007	0.2%	0.3%	0.9%
2007 - 2012	0.3%	0.4%	0.9%
1997 - 2012	0.3%	0.4%	0.9%

Source: National Planning Association
(1) Non-census years based on NPA Estimates.
(2) Chicago Region includes: Cook, DeKalb, DuPage, Grundy, Kane, Kankakee, Kendall, Lake, McHenry and Will counties in Illinois; Lake and Porter counties in Indiana and Kenosha County in Wisconsin.
(3) Midwest includes Illinois, Indiana, Michigan, Ohio and Wisconsin.
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Population trends within the Chicago Region have remained generally consistent since 1982. With the exception of Cook County Illinois and Lake County Indiana, the other counties' population grew moderately. From 1982 to 1997, McHenry County had the highest population growth rate at 2.9 percent annually; followed by DuPage and Lake counties in Illinois at approximately 1.8 percent. Although Cook County lost population from 1982 to 1997, its declining population trend is expected to slow throughout the forecast period. According to NPA, the Chicago Region's population is projected to grow at a rate similar to the historical growth pattern, with an average annual compound growth rate of 0.3 percent from 1997 to 2012.

C. AIR TRADE AREA EMPLOYMENT

The employment levels in the Chicago Region were similar to those in the Midwest and the United States from 1982 to 1997 (see **Table II-2**). The Chicago Region's employment grew at an average annual compound rate of 1.6 percent, which is slightly lower than the average for the Midwest of 1.8 percent and the United States at 1.9 percent. The national economic recession of the early 1990s equally decreased total employment levels in 1991 for the Chicago Region, the Midwest and the United States. The recession's impact lingered in the Chicago Region, causing another decline in employment in 1992. Since 1992, employment levels have improved. From 1992 to 1997, employment in the Chicago Region increased by 9.2 percent, in the Midwest by 8.2 percent and in the United States by 9.0 percent.

NPA's employment forecast for the Chicago Region projects an average annual compound growth rate of 0.6 percent from 1997 to 2012. Based on this rate, over 523,000 new jobs will be created in the Chicago Region by 2012. NPA's forecast includes the number of new jobs expected to be created by the Chicago Region's economy in total but does not identify employment growth directly or indirectly related to aviation.

D. AIR TRADE AREA PERSONAL INCOME

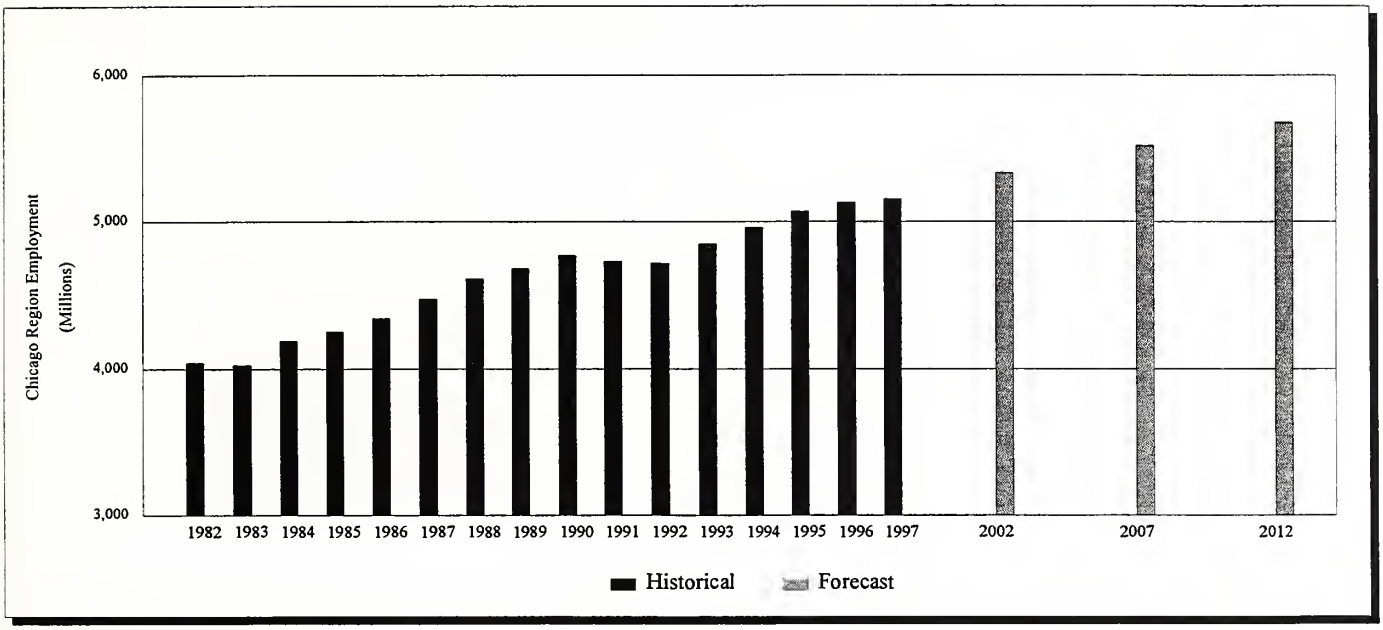
The Chicago Region's economic strength as gauged by personal income compares favorably with the Midwest and the United States (see **Table II-3**). Total Chicago Region personal income grew at an average annual compound rate of 2.3 percent from 1982 through 1997. The average annual growth rates for the Midwest and United States were 2.2 percent and 2.7 percent, respectively. From 1982 through 1987, PCPI growth for both the Chicago Region and the Midwest was 1.9 percent; the United States' PCPI growth was 1.7 percent.

Personal income is expected to increase over the 1997 to 2012 forecast period at a rate slower than the historical growth rates in all three geographic areas. NPA forecasts total personal income for the period 1997 to 2012 to increase at an average annual rate of 1.6 percent for the Chicago Region, 1.7 percent for the Midwest and 2.2 percent for the United States. The forecast growth rate for PCPI from 1997 to 2012 is projected at the same rate of 1.3 percent for the Chicago Region, Midwest and United States.

E. SOCIO-ECONOMIC FACTORS

The Chicago Region historically has attracted tourism and business activities. This activity is enhanced by its central geographic location and excellent ground and air accessibility from other major population centers. This section describes these socio-economic indicators of the Air Trade Area's economic strength and diversity.

Table II-2
Chicago Airport System Forecast
Employment Forecast



	Employment		
Year	Chicago Region (1)	Midwest (2)	United States
1982	4,046,410	19,243,950	114,148,960
1983	4,026,880	19,322,930	115,726,310
1984	4,190,130	20,094,260	120,765,760
1985	4,256,020	20,610,310	124,191,570
1986	4,344,090	21,048,990	126,613,330
1987	4,477,710	21,575,560	129,991,330
1988	4,616,200	22,127,830	134,059,320
1989	4,684,140	22,552,430	136,410,360
1990	4,772,910	22,951,550	138,977,790
1991	4,733,600	22,858,720	137,734,020
1992	4,720,790	23,083,020	138,470,310
1993	4,850,810	23,505,540	140,814,340
1994	4,962,230	24,181,660	144,387,520
1995	5,070,110	24,663,670	147,173,280
1996	5,131,800	24,772,440	148,817,290
1997	5,155,900	24,977,600	150,921,690
2002	5,334,110	26,127,830	162,611,260
2007	5,519,740	27,082,590	173,357,220
2012	5,679,140	27,905,890	183,253,630
	Average Annual Compound Growth Rates		
1982 - 1997	1.6%	1.8%	1.9%
1997 - 2002	0.7%	0.9%	1.5%
2002 - 2007	0.7%	0.7%	1.3%
2007 - 2012	0.6%	0.6%	1.1%
1997 - 2012	0.6%	0.7%	1.3%

Source: National Planning Association

(1) Chicago Region includes: Cook, DeKalb, DuPage, Grundy, Kane, Kankakee, Kendall, Lake, McHenry and Will counties in Illinois; Lake and Porter counties in Indiana and Kenosha County in Wisconsin.

(2) Midwest includes Illinois, Indiana, Michigan, Ohio and Wisconsin.

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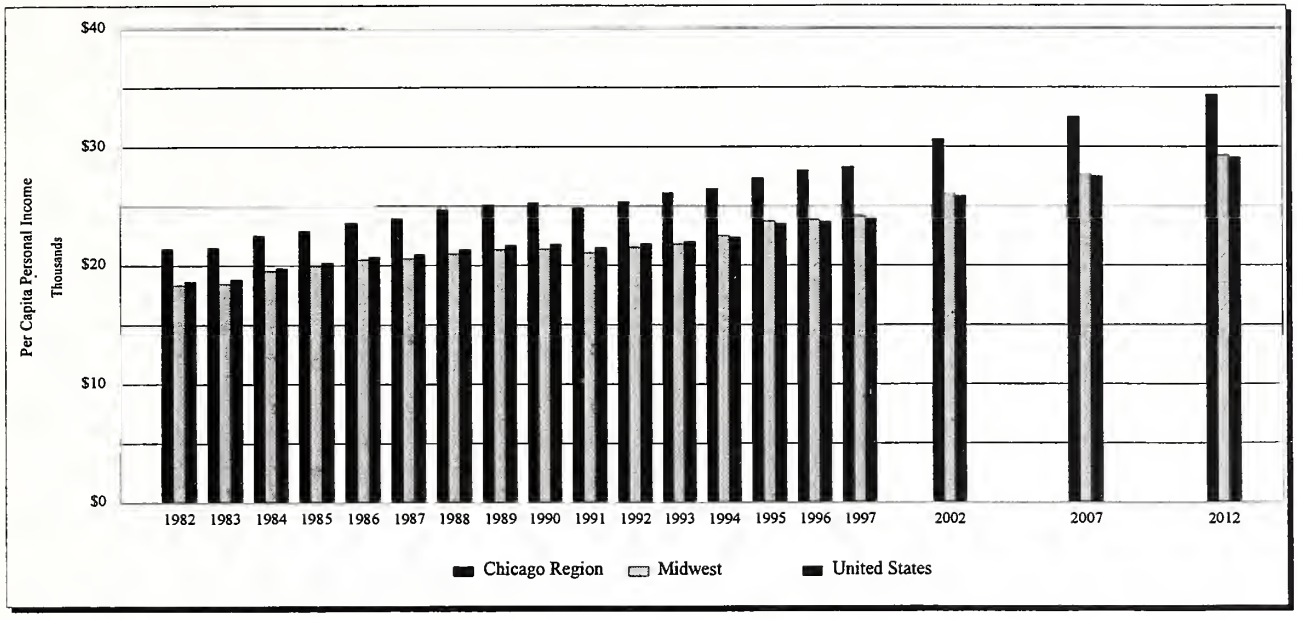
Table II-3
Chicago Airport System Forecast
Personal Income



	Personal Income (1)					
	Chicago Region (2)		Midwest (3)		United States	
Year	Total Personal Income (000)	Per Capita Personal Income	Total Personal Income (000)	Per Capita Personal Income	Total Personal Income (000)	Per Capita Personal Income
1982	$173,955,349	$21,456	$760,943,637	$18,339	$4,319,401,582	$18,645
1983	174,592,205	21,544	763,466,595	18,456	4,397,711,815	18,810
1984	183,416,368	22,570	808,190,048	19,525	4,666,740,413	19,789
1985	186,562,013	22,948	826,077,921	19,945	4,820,702,746	20,262
1986	192,106,258	23,614	849,072,142	20,482	4,979,287,940	20,736
1987	195,628,630	23,984	856,068,986	20,584	5,075,489,897	20,948
1988	202,049,658	24,718	875,325,385	20,980	5,227,523,359	21,380
1989	206,165,943	25,110	893,803,103	21,346	5,358,574,969	21,710
1990	208,629,695	25,266	899,152,588	21,368	5,436,853,543	21,799
1991	206,988,109	24,863	891,740,338	21,043	5,425,836,193	21,519
1992	213,106,532	25,371	919,332,759	21,538	5,574,445,851	21,857
1993	221,110,103	26,114	937,227,717	21,816	5,673,115,737	22,006
1994	225,840,070	26,478	973,076,371	22,529	5,830,577,713	22,395
1995	235,068,161	27,358	1,030,982,044	23,724	6,180,975,251	23,524
1996	241,531,111	28,042	1,039,662,646	23,863	6,278,038,161	23,676
1997	245,002,393	28,292	1,057,598,247	24,166	6,424,286,681	23,982
2002	$267,996,169	$30,640	$1,158,432,948	$26,038	$7,249,272,686	$25,854
2007	287,847,968	32,531	1,251,909,376	27,684	8,060,240,460	27,508
2012	309,186,899	34,383	1,352,365,083	29,314	8,921,909,751	29,099
	Average Annual Compound Growth Rates					
1982 - 1997	2.3%	1.9%	2.2%	1.9%	2.7%	1.7%
1997 - 2002	1.8%	1.6%	1.8%	1.5%	2.4%	1.5%
2002 - 2007	1.4%	1.2%	1.6%	1.2%	2.1%	1.2%
2007 - 2012	1.4%	1.1%	1.6%	1.2%	2.1%	1.1%
1997 - 2012	1.6%	1.3%	1.7%	1.3%	2.2%	1.3%

Source: National Planning Association
(1) Expressed in 1997 constant dollars.
(2) Chicago Region includes: Cook, DeKalb, DuPage, Grundy, Kane, Kankakee, Kendall, Lake, McHenry and Will counties in Illinois; Lake and Porter counties in Indiana; and Kenosha County in Wisconsin.
(3) Midwest includes Illinois, Indiana, Michigan, Ohio and Wisconsin.
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1. Tourism

The Chicago Region is a popular tourist destination with world-renowned museums, zoos and architectural landmarks. Among the most well-known visitor attractions in the City of Chicago are the Museum of Science and Industry, the Field Museum of Natural History, the Adler Planetarium, the John G. Shedd Aquarium and the Art Institute of Chicago. Chicago's downtown is touted internationally as a living museum for 20th Century architecture. The North Michigan Avenue shopping district is a popular destination with its upscale stores, restaurants, hotels and other commercial attractions. The Chicago Region is home to Brookfield Zoo and Lincoln Park Zoo.

Such live entertainment as the Chicago Symphony Orchestra, Lyric Opera, theater and music and comedy clubs are also major attractions in the Chicago Region. The City of Chicago supports franchises in all professional sports, including the six-time world basketball champion Bulls, the White Sox and Cubs in baseball, the Bears in football and the Blackhawks and Wolves in ice hockey. The Chicago Region also draws such international events as tennis, golf and soccer tournaments and Olympic trials. Festivals and special events throughout the year attract visitors, especially to the parks and beaches along the lakefront.

2. Corporate Headquarters and Conventions

The Chicago Region serves as headquarters for a significant number of the largest corporations in America; only the New York metropolitan area has more corporate headquarters. Based upon 1997 sales revenue, 36 of the Fortune 500 Largest U.S. Corporations were based in the Chicago Region (see **Table II-4**). These major corporations, together with the support and ancillary services they require, translate into the high volume of business travel to and from the Chicago Region.

The Chicago Region is the nation's largest center for conventions, trade shows and corporate meetings. Statistics maintained by the Chicago Convention and Tourism Bureau, Inc.,[1/] indicate that attendance at conventions, trade shows and corporate meetings rose to an estimated record high of 5.1 million persons in 1997 (see **Table II-5**), an increase over the 1996 attendance of 6.4 percent and a 4.9 percent average annual compound growth rate from 1982 to 1997. The Chicago Convention and Tourism Bureau estimates that the 1998 attendance will increase by approximately 4.9 percent to an estimated 5.4 million persons.

The top five 1997 trade shows in Chicago, in descending order of attendance, were the National Restaurant Association Show, the Print Expo, the National Sporting Goods Association Show, the National Plastics Expo and the National Hardware Show. These five trade shows drew a combined total of 440,018 attendees, or about 8.6 percent of Chicago's total convention, trade show and corporate meeting attendance. Chicago also hosted the 1996 Democratic National Convention, which was held in August at the United Center, and is bidding the 2000 Republican convention.

[1/] The non-profit Chicago Convention and Tourism Bureau, Inc., is funded by the State of Illinois and annual membership dues and provides marketing and networking services and information for businesses involved in the convention and tourism industries. It is the marketing agent for Chicago's McCormick Place and Navy Pier.

Table II-4
Chicago Airport System Forecast
Fortune 500 Largest Corporations
Headquartered in the Chicago Region

Corporation	1996 Revenue (Millions)	1996 Ranking by Revenue	Industry Description
Sears Roebuck	$38,236.0	17	General Merchandisers
Amoco	32,726.0	19	Petroleum Refining
Motorola	27,973.0	24	Electronics, Electrical Equipment
Allstate	24,299.0	32	Insurance
Sara Lee	18,624.0	57	Food
UAL	16,362.0	71	Airlines
Ameritech	14,917.0	77	Telecommunications
Walgreen	11,778.4	116	Food & Drug Stores
Abbott Laboratories	11,013.5	124	Pharmaceuticals
McDonald's	10,686.5	128	Food Services
WMX Technologies	10,321.6	134	Waste Management
First Chicago NBD Corp.	10,117.0	139	Commercial Banks
Unicom	6,937.0	209	Electric and Gas Utilities
R.R. Donnelley & Sons	6,599.0	217	Publishing, Printing
Navistar International	5,754.0	249	Motor Vehicles and Parts
Baxter International	5,438.0	263	Scientific, Photo, and Control Equipment
Quaker Oats	5,199.0	274	Food
Stone Container	5,141.8	275	Forest and Paper Products
FMC	5,121.9	278	Chemicals
Household International	5,058.8	282	Diversified Financials
ITW	4,996.7	286	Metal Products
Inland Steel Industries	4,584.1	307	Metals
Allegiance	4,387.2	313	Health Care
AON	4,191.2	324	Insurance
Morton International	3,686.2	367	Chemicals
W.W. Grainger	3,537.2	385	Wholesalers
Servicemaster	3,458.3	394	Miscellaneous
Brunswick	3,160.3	427	Transportation Equipment
Whitman	3,111.3	432	Beverages
IMC Global	2,981.0	455	Chemicals
Dean Foods	2,814.3	471	Food
Ace Hardware	2,742.5	478	Wholesalers
General Instrument	2,689.7	486	Electronics, Electrical Equipment
USG	2,590.0	496	Building Materials, Glass

Source: Fortune "The Fortune 500 Largest Corporations" June 9, 1997.
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Table II-5
Chicago Airport System Forecast
Statistics on Conventions, Trade Shows and
Corporate Meetings Held in the Chicago Region

	Conventions		Trade Shows		Corporate Meetings		Total	
Year	Number	Attendance	Number	Attendance	Number	Attendance	Number	Attendance
1982	695	443,444	165	1,439,930	25,600	750,086	26,460	2,633,460
1983	736	445,896	182	1,472,010	25,137	815,288	26,055	2,733,194
1984	782	510,495	168	1,559,750	26,171	885,627	27,121	2,955,872
1985	748	481,241	158	1,596,200	26,820	869,700	27,726	2,947,141
1986	697	495,396	153	1,531,300	26,646	869,985	27,496	2,896,681
1987	697	505,289	158	1,528,750	26,312	860,262	27,167	2,894,301
1988	1,099	538,344	157	1,782,915	26,255	862,373	27,511	3,183,632
1989	1,113	503,883	145	1,769,160	25,616	841,077	26,874	3,114,120
1990	1,102	510,869	136	1,787,160	27,108	893,089	28,346	3,191,118
1991	1,105	333,407	205	1,867,100	28,288	931,853	29,598	3,132,360
1992	1,055	470,768	192	1,998,250	28,835	951,566	30,082	3,420,584
1993	1,224	567,493	180	1,952,550	34,317	1,132,457	35,721	3,652,500
1994	1,377	712,472	165	1,961,799	35,993	1,187,769	37,535	3,862,040
1995	1,205	853,466	153	2,006,604	37,499	1,237,525	38,857	4,097,595
1996	1,135	983,000	140	2,214,742	41,353	1,633,800	42,628	4,831,542
1997 (1)	1,100	957,000	156	2,343,000	43,000	1,840,000	44,256	5,140,000
1998 (2)	1,130	1,000,500	150	2,449,500	45,580	1,940,000	46,860	5,390,000
	Average Annual Compound Growth Rates							
1982 - 1997	3.3%	5.6%	-0.6%	3.6%	3.9%	6.5%	3.9%	4.9%

Source: Chicago Convention and Tourism Bureau, Inc., "Chicago Convention, Trade Show, Corporate Meetings Statistics," June 1998.
(1) Preliminary figures for 1997.
(2) Estimate provided by the Chicago Convention and Tourism Bureau, Inc.
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The Air Trade Area also provides a wide selection of some of the finest convention, trade show, corporate meeting and lodging facilities in the country. The Chicago Convention and Visitors Bureau estimates that, in 1997, the Chicago Region had approximately 68,000 hotel rooms, which is the fifth-largest total for a U.S. metropolitan area, behind Las Vegas (approximately 104,000 rooms), Los Angeles (approximately 93,000 rooms), Orlando approximately 88,000 rooms) and Honolulu (approximately 70,300 rooms). The largest convention center in the North America--Chicago's McCormick Place--has 2.2 million square feet of exhibit space and over 100 meeting rooms. An approximately $1 billion expansion completed in January 1997 added 840,000 square feet (included in the 2.2 million square feet total) and created 1.3 million square feet of contiguous space on one level. McCormick Place's East Building, renamed the Lakeside Center, is being renovated to serve the growing number of medium- and small-sized events, so they can be scheduled simultaneously, but independently, from larger events.

* * * *

In summary, the demographic and economic factors impacting aviation travel demand in the Chicago Region are positive. The key factors of population, income and employment are all expected to show continued growth. Employment is expected to continue to shift toward the service and trade sectors, both of which have a high propensity toward job-related travel. The large number of corporate headquarters located in the Chicago Region, as well as vigorous convention, trade show and corporate meeting activity, places continued positive impacts on both domestic and international air travel. Tourism is an added contributor to the area's economic development, and such other industry factors as the price of jet fuel and the propensity to travel all point to a period of continued growth in air transportation demand for the Chicago Region.

III. AIR TRAFFIC/AIR SERVICE ANALYSIS

In developing aviation activity forecasts for the airports in the System, it is essential to consider the role of each airport within the Region, as well as the activity level at each airport. This chapter begins with a discussion of the three airports, followed by detailed analyses of their air traffic and air service.

A. CHICAGO AIRPORT SYSTEM

Each airport in the System provides scheduled commercial service, along with facilities for corporate and general aviation, and serves a unique role in the Chicago Region's transportation market.

According to records published by Airports Council International (ACI), in 1998, the System was the second-busiest airport system in the world, exceeded in total enplanements only by the three-airport system of the Port Authority of New York and New Jersey. In 1997, the Chicago Airport System handled a combined total of 80,213,773 commercial passengers, and the PANYNJ recorded 83,878,573 total passengers, or 4.6 percent more passengers than Chicago's airports. Since 1988, total Chicago Airport System enplanements represented 5.7 percent to 7.1 percent of annual enplanements nationwide, with 1994 representing the 10-year high at 7.1 percent.

1. O'Hare

O'Hare has been the primary commercial airport for the Chicago Region since 1962. It is located 18 miles northwest of the central business district and occupies over 7,500 acres of land. O'Hare is accessed by a network of highways, including several regional expressways that are part of the Federal Interstate Highway System. The Airport is linked to the central business district by a rapid transit rail system, and commuter rail service to a station adjacent to O'Hare was initiated in 1996. Extensive hotel, rental car, air cargo and other commercial facilities have been built around O'Hare to serve airport demand.

According to the DOA's Management Records and the U.S. Department of Transportation (USDOT) Passenger Ticket Survey, in 1997, O'Hare recorded 30,945,554 domestic enplanements, an increase of approximately 1.3 percent from 1996 levels. Of the total 1997 domestic enplanements, 13,576,616 (43.9 percent) were O&D, and 17,368,938 (56.1 percent) were connecting enplanements. Domestic passengers connecting to international flights are included as connecting enplanements. International enplanements increased by 10.3 percent in 1997 to 3,892,529.

Based on 1997 figures, 86.8 percent of the System's total enplaned passengers were handled at O'Hare. O'Hare's percentage share of the System's enplaned passengers has fluctuated from a high of 86.4 percent in 1992 to a low of 74.9 percent in 1994, reflecting the fluctuations in air service at Midway in the early 1990s.

O'Hare continues to be a vital link in the U.S. air transportation system. It is a major connecting hub for both American and United, two of the world's largest air carriers. It is also an important international gateway to Europe, Canada and Mexico and has significant potential for growth in travel to the Pacific Rim and South America. From 1962 through 1997, O'Hare held the title of "the world's busiest airport," as measured by total aircraft

operations and air passengers, reflecting its importance to the commercial aviation industry and the Chicago Region's economy.

O'Hare is expected to continue to be the world's busiest airport in terms of passengers for many years as both United and American continue to use O'Hare as a major connecting hub and as demand for international service between Chicago and Europe, the Pacific Rim, and South America continues to grow.

2. Midway

Midway Airport began operation in 1928 and was called Chicago Municipal Airport until 1949. Midway is located approximately nine miles southwest of Chicago's central business district. Its facilities consist of a single-level terminal building with 30 jet aircraft parking positions on three concourses and five runways with a complementary system of taxiways.

In 1996, the City began to implement the Midway Development Program, which encompasses the construction of a replacement terminal building, a parking structure located east of Cicero Avenue and a new concourse building located west of Cicero Avenue in the existing terminal area. The new terminal and concourses will be connected by a pedestrian bridge over and a tunnel under Cicero Avenue. The concourse building will include 38 air carrier aircraft gates and two commuter aircraft parking areas. The main passenger terminal will be a three-level structure with departure functions on the upper level, arrival functions on the lower level and a baggage make-up room in the basement level. A new six-level parking structure with approximately 3,000 parking spaces will be adjacent to the east side of the terminal.

In 1997, Midway handled 4,721,641 enplanements, representing 13.2 percent of the System's total domestic enplanements. All but 1,481 of Midway's 1997 enplanements were domestic: 4,080,083 (86.4 percent) enplanements were O&D traffic, and 641,558 (13.6 percent) were connecting passengers. Total activity at Midway in 1997 was 2.0 percent above 1996 levels.

Initially, Midway was surrounded by farmland but, as passenger activity increased, the surrounding community became heavily populated with retail establishments and residences. Midway became the primary airport in the Chicago Region and for three decades was the busiest airport in the world. Midway reached its highest activity level in 1958, when it served approximately 5 million enplaned passengers. The Airport continued to boom until 1962, when all commercial flights were transferred to O'Hare, which was equipped with longer runways that could accommodate larger and faster jets and had room for growth. As a result, many businesses surrounding Midway left, investment in the area dwindled, and Midway was virtually deserted.

In 1979, Midway Airlines started service with three aircraft, and activity at Midway quickly increased as the airline expanded, and the growth trend continued as new carriers established service. Dallas-based Southwest Airlines initiated service in 1985 and, in September 1987, Midway Connection, the commuter arm of Midway Airlines, established service. Between 1980 and 1990, enplaned passenger levels increased, as did Midway's share of the Chicago Region's total enplaned passengers. By 1990, Midway Airlines represented over 53.0 percent of the activity at Midway.

Midway Airlines filed for bankruptcy in March 1991 and scaled back service until it ceased operations in November 1991. With the withdrawal of Midway Airlines, Southwest Airlines increased its service at Midway. Today, Midway is almost as busy as it was in 1958, when it handled a record 5 million enplaned passengers. Southwest is the dominant carrier, with over 50.0 percent of Midway's passenger activity. Midway complements O'Hare as the Chicago Region's low-fare, direct service, close-in airport.

3. Meigs

In 1948, the City opened an airport on Northerly Island, which it renamed Merrill C. Meigs Field in 1950. Meigs is on the shore of Lake Michigan and is adjacent to the City's central business district. The City leases the property on which Meigs is located from the Chicago Park District.

Meigs is primarily a corporate and general aviation airport with limited commercial service because of the short length of its single runway and lack of precision instrument landing system capabilities. Because Meigs lacks a precision approach and a crosswind runway, poor weather and strong winds cause it to be closed portions of as many as 100 days a year.

The lease between the City and the Park District expired on September 30, 1996, and the City closed Meigs with the intent of redeveloping the island into a park. Meigs reopened in February 1997 as the result of an agreement between the City and the State of Illinois that will keep it open until 2002.

In 1997, Meigs' enplanements totaled 12,402. Enplanements declined from 27,720 in 1994 to 23,448 in 1995 to 15,641 in 1996. As of December 1997, the only commercial airline service at Meigs was six daily scheduled flights to Springfield, Illinois operated by Great Lakes Airlines.

Meigs' role will continue to be much as it is today, used primarily by business travelers accessing the central business district and attending nearby conventions. When Meigs closes, the City estimates that 50.0 percent to 70.0 percent of the activity at Meigs will transfer to Midway, particularly the commercial traffic. In 1997, approximately 1,210 annual commercial flights between Meigs and Springfield were recorded. Gary and such regional reliever airports as Palwaukee and DuPage are expected to assume the rest of this displaced traffic.

B. HISTORICAL AIR SERVICE

An important element in preparing and analyzing an aviation activity forecast is understanding the historical base from which the forecast originates. This section summarizes historical aviation activity within the System and includes a review of passenger and operations activity, O&D and connecting traffic and the top domestic and international markets served from the Chicago Region airports.

1. Airlines Serving The Airports

As of April 1998, 69 airlines provided service at O'Hare: 14 domestic carriers, 30 foreign flag carriers, four commuter carriers and 21 all-cargo airlines (see **Table III-1**). Of the 14

Table III-1
Chicago Airport System Forecast
Airlines Serving Chicago-O'Hare International Airport
as of April 1998

Domestic Air Carriers	Foreign Flag Carriers
American Trans Air	Aer Lingus
America West Airlines	Aeroflot Russian International Airlines
American Airlines	Air Canada
Casino Express Airlines	Air France
Continental Airlines	Air India
Delta Air Lines	Air Jamaica
Falcon Air	Alitalia
Miami Air International	Allegro Airlines
Northwest Airlines	British Airways
Reno Air	Canadian International
Sun Country Airlines	China Eastern Airlines
Trans World Airlines	El Al Israel Airlines
USAirways	Japan Airlines
United Airlines	KLM - Royal Dutch Airlines
	Korean Air
	Kuwait Airways
	Laker Airways
	LOT Polish Airlines
	Lufthansa German Airlines
	Mexicana Airlines
	Royal Jordanian
	Ryan International
	Sabena Belgian World Airlines
	Scandinavian Airlines System
	Skytrek
	Swissair
	TAROM - Romanian Air Transport
	TAESA - Transportes Aereos Ejecutivos
	Transmeridian
	Turkish Airlines

Commuter	All-Cargo Airlines (1)
Air Wisconsin dba United Express	Airborne Express
Great Lakes Airlines dba United Express	Asiana
Simmons Airlines dba American Eagle	Burlington Air Express
UFS, Inc. dba United Express	Cathay Pacific
	China Airlines
	CSA
	DHL Worldwide Express
	Emery/ACF
	Emery/Postal
	EVA Air
	Evergreen International Airlines
	Fed Ex
	Gemini Air
	Iberia Airlines of Spain
	Lufthansa Cargo
	Nippon Cargo Airlines
	Polar Air Cargo
	Singapore Airlines
	Southern Air
	Tower Air
	United Parcel Service

Source: Chicago Department of Aviation Management Records.
(1) Air carriers listed as All-Cargo Airlines do not carry passengers at the Airport, although certain of the All-Cargo Airlines may carry passengers at other airports.

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domestic airlines classified by the USDOT as "Major Carriers," 11 provide service from O'Hare: America West, American, Continental, Delta, Northwest, TWA, United and US Airways and the all-cargo airlines DHL, FedEx and UPS.

13 airlines provided service at Midway: 10 domestic carriers, 2 commuter carriers and one all-cargo airline (see **Table III-2**). Four domestic airlines serving Midway are defined by the USDOT as "Major Carriers": America West, Continental, Northwest and Southwest.

2. Top Origin and Destination Markets

Chicago's location along the heavily traveled east/west air routes, its proximity to the center of the United States and its large population base make it a natural location for airline hubbing operations. The nation's two largest carriers, United and American, operate hubs at O'Hare. The Chicago Region's large economic and demographic base also provides strong O&D demand that supports extensive service to a large number of domestic and international destinations. The combination of these factors has resulted in an extremely high level of air service from both O'Hare and Midway.

The top 30 domestic O&D markets from O'Hare are listed in **Table III-3**. They accounted for 67.9 percent of the total domestic O&D enplaned passenger traffic at O'Hare in 1997. The largest of these individual markets was New York, which represented 9.1 percent of total domestic O&D traffic. The next largest O&D market was Atlanta, at 4.1 percent.

The composition of an airport's market service is largely dependent on the operational strategy of the carriers based at that airport. Although Midway is located in the same city as O'Hare, its service pattern is considerably different. The 1997 top 30 domestic O&D enplaned passenger markets at Midway represented 87.2 percent of its total domestic O&D enplaned passengers (see **Table III-4**). Midway's largest domestic O&D market in 1997 was Minneapolis, accounting for 7.6 percent of total domestic O&D enplanements, followed by Detroit at 6.6 percent, Cleveland at 5.8 percent and Baltimore at approximately 5.7 percent. Only three of Midway's top 10 markets, Detroit, Orlando and Los Angeles, are included in O'Hare's top 10 markets, demonstrating the diversity of air service between O'Hare and Midway.

3. Nonstop Air Service to Top 30 Destinations

The largest domestic O&D markets at both O'Hare and Midway typically have a high level of service in terms of the number of daily nonstop flights and choices of airlines. For example, New York had an average of 68 daily nonstop flights on five different airlines in 1997, as shown in **Table III-5**.

O'Hare's top five nonstop domestic destinations are New York, Atlanta, Los Angeles, Dallas, and Boston. Similar information for Midway's top 30 domestic O&D markets is presented in **Table III-6**. Detroit and Kansas City had the most daily nonstop service from Midway in 1997, with Detroit averaging 16 flights per day and Kansas City averaging 18 flights per day.

Table III-2
Chicago Airport System Forecast
Airlines Serving Chicago Midway Airport
as of April 1998

Domestic Air Carriers	Commuter
AirTran Airways	Chicago Express Airlines
American Trans Air	Comair
America West Airlines	
Continental Airlines	
Frontier Airlines	
KIWI International Air Lines	All-Cargo Airlines
Northwest Airlines	
Spirit Airlines	Airborne Express
Southwest Airlines	
Vanguard Airlines	

Source: Chicago Department of Aviation Management Records.
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Table III-3
Chicago Airport System Forecast
O'Hare's Top 30 Domestic Origin & Destination
Passenger Markets

Rank	Destination City	Nonstop Miles	1997 Domestic O&D Enplaned Passengers		
			Passengers	Percent of Total	Cummulative Total
1	New York, NY (1)	733	1,236,600	9.1%	9.1%
2	Atlanta, GA	606	551,850	4.1%	13.2%
3	Los Angeles, CA (2)	1,745	468,760	3.5%	16.6%
4	Dallas, TX (3)	807	450,660	3.3%	19.9%
5	Boston, MA	868	421,460	3.1%	23.0%
6	Washington, D.C. (4)	602	398,000	2.9%	26.0%
7	Detroit, MI (5)	246	389,630	2.9%	28.9%
8	Denver, CO	902	388,070	2.9%	31.7%
9	San Francisco, CA (6)	1,844	364,400	2.7%	34.4%
10	Orlando, FL	1,005	337,020	2.5%	36.9%
11	Phoenix, AZ	1,440	332,630	2.5%	39.3%
12	Philadelphia, PA	679	329,950	2.4%	41.8%
13	Las Vegas, NV	1,515	281,490	2.1%	43.8%
14	Minneapolis, MN	336	279,520	2.1%	45.9%
15	St. Louis, MO	260	264,490	1.9%	47.8%
16	Baltimore, MD	610	258,690	1.9%	49.7%
17	Houston, TX (7)	935	252,190	1.9%	51.6%
18	Cleveland, OH	318	251,120	1.8%	53.4%
19	Miami, FL	1,197	242,790	1.8%	55.2%
20	Tampa, FL	1,012	222,330	1.6%	56.9%
21	Kansas City, MO	405	192,040	1.4%	58.3%
22	Seattle, WA	1,722	191,060	1.4%	59.7%
23	Fort Lauderdale, FL	1,170	159,050	1.2%	60.9%
24	San Diego, CA	1,723	158,580	1.2%	62.0%
25	Santa Ana, CA	1,725	153,560	1.1%	63.2%
26	Raleigh/Durham, NC	632	137,280	1.0%	64.2%
27	Columbus, OH	298	132,030	1.0%	65.2%
28	Hartford, CT	785	125,500	0.9%	66.1%
29	Pittsburgh, PA	414	125,400	0.9%	67.0%
30	Cincinnati, OH	264	122,160	0.9%	67.9%
	Subtotal		9,218,310	67.9%	67.9%
	All Other		4,358,306	32.1%	100.0%
	Total		13,576,616	100.0%	

Source: USDOT Research and Special Programs Administration, Origin-Destination Survey of Airline Passenger Traffic - Domestic, 1997.
(1) John F. Kennedy International, La Guardia and Newark International airports
(2) Los Angeles International, Burbank, Ontario, Long Beach, and John Wayne (Orange County) airports
(3) Dallas/Ft. Worth International Airport and Dallas Love Field
(4) Washington Dulles International and Washington National airports
(5) Detroit Metropolitan Wayne County and Detroit City airports
(6) San Francisco International, Oakland International and San Jose International airports
(7) Houston George Bush Intercontinental Airport and Houston Hobby Field
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Table III-4
Chicago Airport System Forecast
Midway's Top 30 Domestic Origin & Destination
Passenger Markets

Rank	Destination City	Nonstop Miles	1997 Domestic O&D Enplaned Passengers		
			Passengers	Percent of Total	Cumulative Percent
1	Minneapolis, MN	336	307,140	7.5%	7.5%
2	Detroit, MI (1)	246	266,240	6.5%	14.1%
3	Cleveland, OH	318	233,500	5.7%	19.8%
4	Baltimore, MD	610	231,330	5.7%	25.4%
5	Kansas City, MO	405	218,930	5.4%	30.8%
6	St Louis, MO	260	203,240	5.0%	35.8%
7	Orlando, FL	1,005	194,170	4.8%	40.6%
8	Columbus, OH	298	169,980	4.2%	44.7%
9	Los Angeles, CA (2)	1,745	153,040	3.8%	48.5%
10	Las Vegas, NV	1,515	152,690	3.7%	52.2%
11	Phoenix, AZ	1,440	131,690	3.2%	55.4%
12	New York City, NY (3)	733	121,870	3.0%	58.4%
13	Louisville, KY	271	114,610	2.8%	61.2%
14	Tampa, FL	1,012	113,300	2.8%	64.0%
15	Nashville, TN	394	107,910	2.6%	66.7%
16	San Francisco, CA (4)	1,835	80,640	2.0%	68.6%
17	Atlanta, GA	606	80,230	2.0%	70.6%
18	Fort Lauderdale, FL	1,170	80,050	2.0%	72.6%
19	Indianapolis, IN	177	76,780	1.9%	74.4%
20	Fort Meyers, FL	1,100	70,430	1.7%	76.2%
21	Omaha, NE	423	64,170	1.6%	77.7%
22	Denver, CO	898	62,040	1.5%	79.3%
23	Houston, TX (5)	935	58,880	1.4%	80.7%
24	Providence, RI	842	46,520	1.1%	81.8%
25	Birmingham, AL	570	45,390	1.1%	83.0%
26	Sarasota, FL	1,035	38,710	0.9%	83.9%
27	Miami, FL	1,182	36,140	0.9%	84.8%
28	Little Rock, AR	544	34,730	0.9%	85.6%
29	New Orleans, LA	825	33,150	0.8%	86.5%
30	San Diego, CA	1,728	30,530	0.7%	87.2%
	Subtotal		3,558,030	87.2%	87.2%
	All Other Cities		522,008	12.8%	100.0%
	Total		4,080,038	100.0%	

Source: USDOT Research and Special Programs Administration, Origin-Destination Survey of Airline Passenger Traffic - Domestic, 1997.
(1) Detroit Metropolitan Wayne County and Detroit City airports
(2) Los Angeles International, Burbank, Ontario, Long Beach and John Wayne (Orange County) airports
(3) John F. Kennedy International, La Guardia and Newark International airports
(4) San Francisco International, Oakland International and San Jose International airports
(5) Houston George Bush Intercontinental Airport and Houston Hobby Field
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Table III-5
Chicago Airports System Forecast
O'Hare's Nonstop Service to Top 30 Origin and Destination
Domestic Passenger Markets

Rank	Destination City	Average Daily Nonstops From O'Hare	Number of Carriers Providing Service	Airlines Providing Nonstop Service
1	New York City, NY	68	5	American, Continental, Delta, TWA, United
2	Atlanta, GA	28	5	American, Delta, Northwest, United, Korean Air
3	Los Angeles, CA	36	2	American, United
4	Dallas, TX	29	2	American, United
5	Boston, MA	31	4	American, Continental, Northwest, United
6	Washington, D.C.	30	2	American, United
7	Detroit, MI	21	3	American, Northwest, United
8	Denver, CO	19	2	American, United
9	San Francisco, CA	20	2	American, United
10	Orlando, FL	10	3	American, Delta, United
11	Phoenix, AZ	14	3	American, America West, United
12	Philadelphia, PA	28	3	American, United, USAirways
13	Las Vegas, NV	11	3	American, America West, United
14	Minneapolis, MN	37	3	American, Northwest, United
15	St. Louis, MO	22	3	American, TWA, United
16	Baltimore, MD	8	2	United, USAirways
17	Houston, TX	17	3	American, Continental, United
18	Cleveland, OH	17	3	American, Continental, United
19	Miami, FL	14	2	American, United
20	Tampa, FL	7	2	American, United
21	Kansas City, MO	11	1	American
22	Seattle, WA	14	3	American, Continental, United
23	Fort Lauderdale, FL	5	2	American, United
24	San Diego, CA	10	3	American, Continental, United
25	Santa Ana, CA	5	2	American, United
26	Raleigh/Durham, NC	9	2	American, United
27	Columbus, OH	11	2	American, United
28	Hartford, CT	12	2	American, United
29	Pittsburgh, PA	12	2	United, USAirways
30	Cincinnati, OH	18	4	American, Delta, United, Sabena

Source: U.S. D.O.T. Research and Special Programs Administration, Origin-Destination Survey of Airline Passenger Traffic - Domestic, 1996. Survey data for 1997 is not yet available.
(1) John F. Kennedy International, La Guardia and Newark International airports
(2) Los Angeles International, Burbank, Ontario, Long Beach, and John Wayne (Orange County) airports
(3) Washington Dulles International and Washington National airports
(4) Dallas/Ft. Worth International Airport and Dallas Love Field
(5) Detroit Metropolitan Wayne County and Detroit City airports
(6) Houston George Busch Intercontinental Airport and Houston Hobby Field

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Table III-6
Chicago Airport System Forecast
Midway's Nonstop Service to Top 30 Origin and Destination
Domestic Passenger Markets

Rank	Destination City	Average Daily Nonstops From Midway	Number of Carriers Providing Service	Airlines Providing Nonstop Service
1	Minneapolis, MN	12	2	Northwest, Vanguard
2	Detroit, MI (1)	16	2	Northwest, Southwest
3	Cleveland, OH	14	2	Continental, Southwest
4	Baltimore, MD	8	1	Southwest
5	Kansas City, MO	18	2	Southwest, Vanguard
6	St Louis, MO	15	2	Prestige, Southwest
7	Orlando, FL	3	2	American Trans Air, KIWI
8	Columbus, OH	10	2	America West, Southwest
9	Los Angeles, CA (2)	2	1	American Trans Air
10	Las Vegas, NV	3	2	American Trans Air, KIWI
11	Phoenix, AZ	2	1	American Trans Air
12	New York City, NY (3)	6	2	Continental, Nations Air Express
13	Louisville, KY	7	1	Southwest
14	Tampa, FL	2	1	KIWI
15	Nashville, TN	8	1	Southwest
16	San Francisco, CA (4)	1	1	American Trans Air
17	Atlanta, GA	6	3	AirTran, KIWI, ValuJet
18	Fort Lauderdale, FL	1	1	American Trans Air
19	Indianapolis, IN	8	3	American Trans Air, Chicago Express, Southwest
20	Fort Meyers, FL	2	1	American Trans Air
21	Omaha, NE	6	1	Southwest
22	Denver, CO	4	2	Frontier, Western Pacific
23	Houston, TX (5)	0	0	No nonstop service from Midway
24	Providence, RI	2	1	Southwest
25	Birmingham, AL	2	1	Southwest
26	Sarasota, FL	1	1	American Trans Air
27	Miami, FL	1	2	Pan American World Airways, AirTran Airlines
28	Little Rock, AR	1	1	Southwest
29	New Orleans, LA	0	0	No nonstop service from Midway
30	San Diego, CA	0	1	American Trans Air

Sources: USDOT Research and Special Programs Administration, Origin-Destination Survey of Airline Passenger Traffic - Domestic, 1997. Official Airline Guide.

(1) Detroit Metropolitan Wayne County and Detroit City airports

(2) Los Angeles International, Burbank, Ontario, Long Beach and John Wayne (Orange County) airports

(3) John F. Kennedy International, La Guardia and Newark International airports

(5) San Francisco International, Oakland International and San Jose International airports

(4) Houston George Bush Intercontinental Airport and Houston Hobby Field

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As of June 1998, O'Hare and Midway served a total of 228 nonstop and direct destinations, as shown in **Table III-7**. Of that total, 157 were domestic and 71 were international destinations. **Table III-8** compares air service at O'Hare to other major U.S. airports.

4. Top 10 Busiest Domestic Airports

In 1997, O'Hare was the busiest airport in the world based on total passenger activity for the 36th consecutive year, according to the ACI-NA Airport Traffic Report (see **Table III-9**). Recording 70,385,073 passengers in 1997, O'Hare was over 2.1 million passengers ahead of Hartsfield Atlanta International, with 68,205,769 passengers, and over 9.8 million passengers ahead of Dallas/Fort Worth International, with 60,488,713 passengers, the second-and third-busiest passenger airports, respectively.

O'Hare was also the leader in total aircraft operations in 1997 based on the same ACI report, with 883,758 commercial operations (see **Table III-10**). For the 35th year since 1962, O'Hare led the nation's airports in total operations. The closest competitor was Dallas/Fort Worth International, which recorded 851,101 operations, or 32,657 less than O'Hare. Hartsfield Atlanta International followed with 794,621 operations, or 89,137 less than O'Hare.

C. HISTORICAL AIR TRAFFIC

The commercial air passenger traffic in the Chicago Region is classified into two groups: originating enplanements and connecting enplanements. These different passenger used in developing the forecasts are discussed below. For purposes of this forecast, the enplaned commercial air passenger traffic in the Chicago Region is further classified as domestic air carrier enplanements, commuter enplanements, international (non-Canadian) air carrier enplanements and Canadian air carrier enplanements.

Originating enplanements consist of two components. The first includes persons whose residences or places of employment are in the Chicago Region and whose air trips originate at one of the Chicago Region's commercial airports. This local passenger demand consists of business travel, determined principally by such factors as the strength and character of the employers in the Chicago Region, and personal/pleasure travel, determined by such socioeconomic factors as population and income levels. The second component includes persons who are not residents of, or employed within, the Chicago Region, but whose destination is the Chicago Region because of some business, personal or pleasure activity. To a large extent, this non-local passenger demand is determined by the Chicago Region's attractiveness as a center of business, commerce, education, culture and government and by its geographic location. Originating enplanements can be further classified as domestic (air carrier or commuter) or international (air carrier only), based on their destination.

Connecting enplanements are persons traveling to a destination outside the Chicago Region who transfer from one aircraft to another at one of the Chicago Region's commercial airports. The number of connecting passengers at an airport reflects the quality of air service offered at the facility and the geographic location of that airport relative to heavily traveled air routes. As with originating enplanements, connecting enplanements can be further classified as domestic (air carrier or commuter) or international (air carrier only), based on their destination.

Table III-7
Chicago Airport System Forecast
Number of Airports Served from O'Hare and Midway
as of June 1998

	O'Hare	Midway	Unique Total (1)
Airlines (2)	69	13	77
Domestic Air Service			
Nonstop	126	42	131
Direct	21	28	26
Total Domestic	147	70	157
International Air Service			
Nonstop	41	0	41
Direct	30	2	30
Total International	71	2	71
Total			
Nonstop	167	42	172
Direct	51	30	56
Total	218	72	228

Sources: Department of Aviation records and the Official Airline Guide

(1) Unique total column eliminates double counting of airports served from both O'Hare and Midway.

(2) As of April 1998. Includes All-Cargo airlines.

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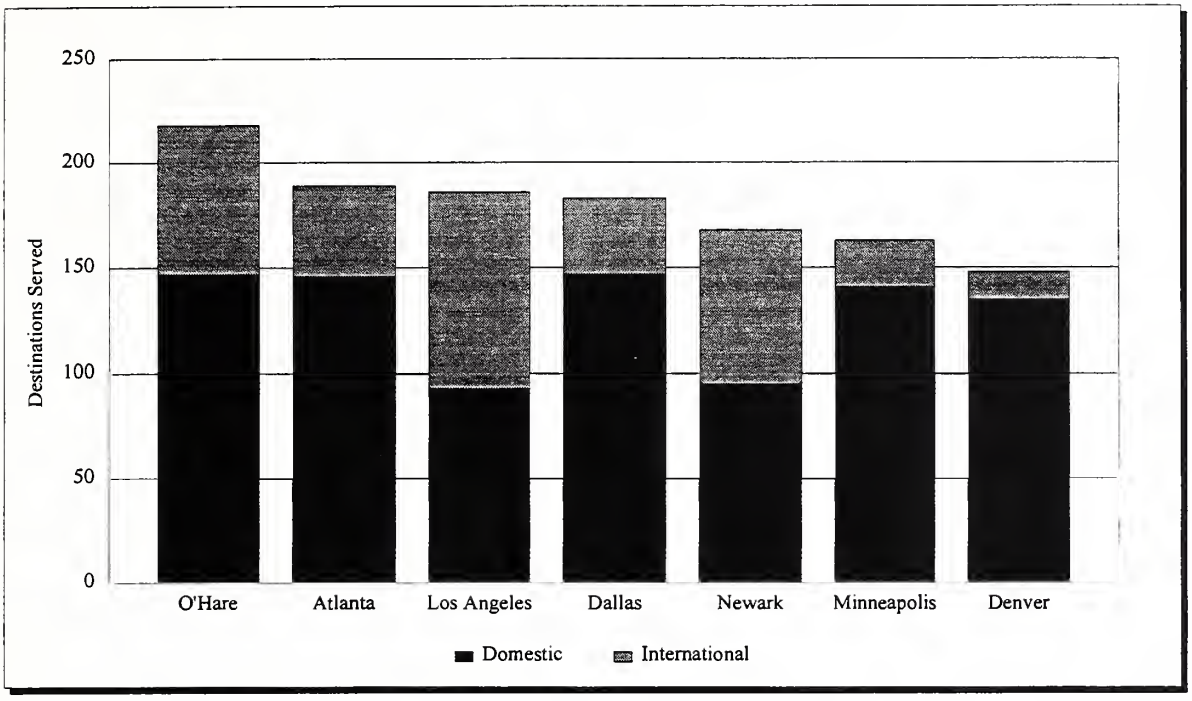
Table III-8
Air Service Comparison
Chicago Airport System Forecast
Number of Airport Destinations Served from Select U.S. Airports



	Number of Airport Destinations Served								
	Domestic			International			Total		
Airport	Nonstop	Direct (1)	Total	Nonstop	Direct (1)	Total	Nonstop	Direct (1)	Total Served
Chicago-O'Hare International	126	21	147	41	30	71	167	51	218
Atlanta Hartsfield International	127	19	146	31	12	43	158	31	189
Los Angeles International	68	25	93	53	40	93	121	65	186
Dallas-Ft. Worth International	117	30	147	23	13	36	140	43	183
Newark International	78	17	95	49	24	73	127	41	168
Minneapolis--St. Paul International	111	30	141	15	7	22	126	37	163
Denver International	103	32	135	9	4	13	112	36	148

(1) Direct service is defined as same airline, same flight number, and same equipment type, excluding nonstop service.
Source: Official Airline Guide, June 1998
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Table III-9
Chicago Airport System Forecast
1997 Passenger Activity
The 10 Busiest Domestic Airports

Ranking	Airport	1997 Total Passengers	Percent Change from 1996
1	Chicago-O'Hare International Chicago, IL	70,385,073	1.8%
2	Wm. B. Hartsfield Atlanta International Atlanta, GA	68,205,769	7.7%
3	Dallas/Ft. Worth International Dallas/Ft. Worth, TX	60,488,713	4.2%
4	Los Angeles International Los Angeles, CA	60,142,588	3.7%
5	San Francisco International San Francisco, CA	40,499,947	3.2%
6	Denver International Denver, CO	34,972,936	8.3%
7	Miami International Miami, FL	34,533,268	3.1%
8	Detroit Metropolitan Wayne County Airport Detroit, MI	31,520,656	4.6%
9	John F. Kennedy International New York, NY	31,228,956	0.3%
10	Newark International Airport New York, NY	30,866,374	6.0%

Source: ACI-NA Airport Traffic Report 1997

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Table III-10
Chicago Airport System Forecast
1997 Operations Activity
The 10 Busiest Domestic Airports

Ranking	Airport	1997 Total Operations	Percent Change from 1996
1	Chicago-O'Hare International Chicago, IL	883,758	-2.8%
2	Dallas/Ft. Worth International Dallas/Ft. Worth, TX	851,101	0.4%
3	Wm. B. Hartsfield Atlanta International Atlanta, GA	794,621	4.4%
4	Los Angeles International Los Angeles, CA	781,492	2.3%
5	Detroit Metropolitan Wayne County Airport Detroit, MI	541,216	1.1%
6	Miami International Miami, FL	533,084	-0.3%
7	Phoenix Sky Harbor International Phoenix, AZ	521,689	-1.0%
8	Oakland International Oakland, CA	519,504	6.4%
9	Lambert-St.Louis International St. Louis, MO	516,889	0.6%
10	Minneapolis/St. Paul International Minneapolis, MN	491,273	1.8%

Source: ACI-NA Airport Traffic Report 1997 (Preliminary)

Total enplanements are the sum of all originating and connecting enplanements. For purposes of air traffic forecasting, the terms "enplanements" or "enplaned passengers" are used interchangeably.

Domestic air carrier enplanements are originating and connecting enplanements at one of the Chicago Region's commercial airports who are using an airline the FAA classifies as an air carrier and whose destination is in the United States.

Commuter enplanements are originating and connecting enplanements using an airline classified as a commuter at one of the Chicago Region's commercial airports. The breakout of domestic commuter service is based on the individual carrier's mode of operation (i.e., providing feeds to their major airline partners, generally within 300 miles). This definition of a commuter airline does not exclude the use of air carrier jet aircraft, although historically these carriers operate turboprop and small (fewer than 72 seats) jet equipment.

International air carrier enplanements are originating and connecting enplanements at one of the Chicago Region's commercial airports whose origin or destination is outside the United States, excluding Canada. Canadian air carrier enplanements are originating and connecting enplanements at one of the Chicago Region's commercial airports whose origin or destination is an airport in Canada.

1. Historical Enplanement Activity

The historical enplanement activity for each airport in the System served as a base for the forecast of future activity. In this analysis, it was important to differentiate growth by type of enplanement (i.e., O&D, connecting, air carrier, and commuter).

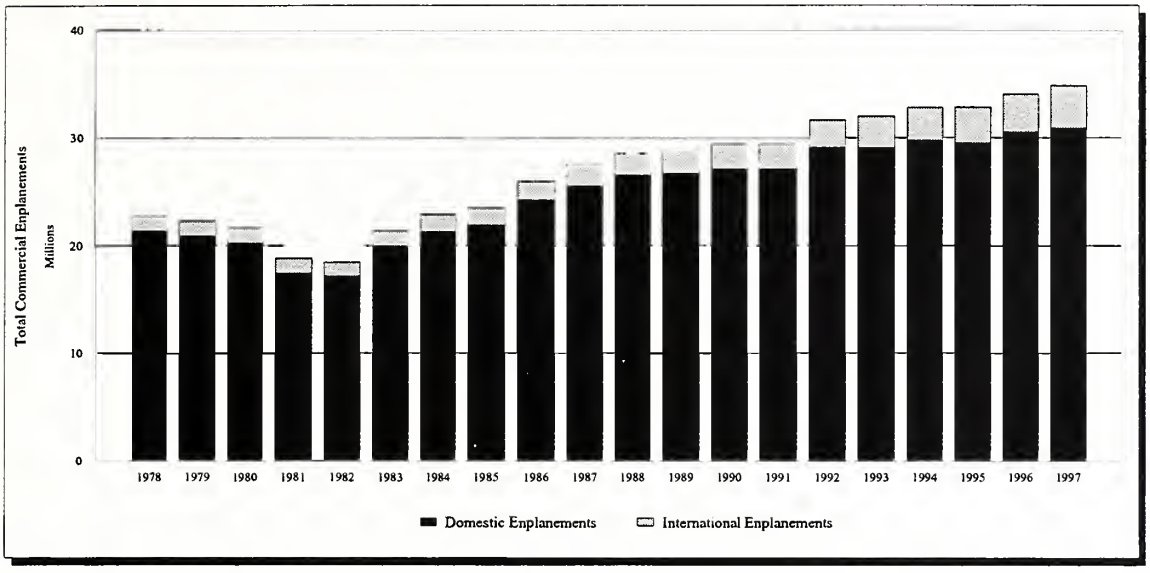
a. O'Hare

Total enplanements at O'Hare increased from 22,683,300 in 1978 to 34,838,083 in 1997. This equates to an increase of 53.6 percent, or 12,154,783 enplanements, at an average annual compound growth rate of 2.3 percent (see **Table III-11**). This growth rate appears modest but, given the size of O'Hare's annual enplanement base during this period, the average increase was over 653,000 enplanements per year.

The largest increase in O'Hare's enplanements was in the domestic air carrier sector, which rose from 21,288,867 enplanements in 1978 to 28,409,209 in 1997, an increase of 7,120,342 enplanements at an average annual growth rate of 1.5 percent. From 1986 to 1997, domestic air carrier enplanements increased at an average annual rate of 2.1 percent. This rapid growth coincides with an increase in activity at O'Hare by its two largest carriers, United and American, following deregulation of domestic airline industry. In 1997, domestic air carrier enplanements were up 0.4 percent over 1996 levels. This lower growth rate is evidence of the maturing of the domestic markets.

Given its favorable geographic location and United's and American's hubbing operations, O'Hare has maintained a considerable level of domestic connecting activity, ranging from a low of 49.3 percent to a high of 60.0 percent between 1978 and 1997 (see Table III-11). The change in domestic connecting percentages from year to year is a function of the hubbing carriers' attempting to most efficiently

Table III-11
Chicago Airport System Forecast
O'Hare Historical Enplanements



Year	Domestic Air Carrier	Commuter	International Air Carrier	Total Enplanements	Annual Percent Change	Domestic O&D Enplanements	Domestic Connecting Percentage
1978	21,288,867	79,117	1,315,316	22,683,300	n/a	9,160,600	57.1%
1979	20,733,181	175,878	1,358,288	22,267,347	-1.8%	9,795,139	53.2%
1980	19,684,429	552,012	1,392,353	21,628,794	-2.9%	9,215,766	54.5%
1981	16,708,646	734,077	1,390,982	18,833,705	-12.9%	8,174,161	53.1%
1982	16,263,544	901,530	1,277,900	18,442,974	-2.1%	8,700,446	49.3%
1983	18,799,142	1,163,209	1,371,480	21,333,831	15.7%	9,018,216	54.8%
1984	19,848,060	1,443,636	1,611,667	22,903,363	7.4%	9,474,547	55.5%
1985	20,369,355	1,540,418	1,558,255	23,468,028	2.5%	10,189,076	53.5%
1986	22,617,496	1,642,759	1,700,273	25,960,528	10.6%	10,347,671	57.3%
1987	23,976,214	1,573,832	1,961,284	27,511,330	6.0%	10,446,530	59.1%
1988	24,786,627	1,759,290	2,013,749	28,559,666	3.8%	10,789,357	59.4%
1989	24,789,923	1,941,966	2,142,598	28,874,487	1.1%	10,693,421	60.0%
1990	25,008,590	2,092,788	2,292,371	29,393,749	1.8%	11,233,026	58.6%
1991	24,954,236	2,144,578	2,267,392	29,366,206	-0.1%	11,408,803	57.9%
1992	26,783,294	2,338,365	2,535,389	31,657,048	7.8%	12,215,102	58.1%
1993	26,818,414	2,286,609	2,889,727	31,994,750	1.1%	11,831,612	59.3%
1994	27,257,146	2,524,086	3,040,777	32,822,009	2.6%	12,645,407	57.5%
1995	27,210,056	2,347,024	3,298,380	32,855,460	0.1%	13,245,378	55.2%
1996	28,041,604	2,497,080	3,529,201	34,067,885	3.7%	13,575,872	55.5%
1997	28,409,209	2,536,345	3,892,529	34,838,083	2.3%	13,576,616	56.1%
	Average Annual Compound Growth Rates						
1978-1997	1.5%	20.0%	5.9%	2.3%		2.1%	-0.1%
1986-1997	2.1%	4.0%	7.8%	2.7%		2.5%	-0.2%
1991-1997	2.2%	2.8%	9.4%	2.9%		2.9%	-0.5%

Source: Chicago Department of Aviation Management Records (adjusted for Commuter classification).

Note: American Eagle, United Express/Air Wisconsin, United Express/U.F.S. and Great Lakes are included in the Commuter Class.

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year to year is a function of the hubbing carriers' attempting to most efficiently manage their route structures throughout their national systems. In 1997, 56.1 percent of O'Hare's domestic enplanements were connecting passengers.

Commuter enplanements at O'Hare have grown tremendously, increasing from 79,117 enplanements in 1978 to 2,536,345 enplanements in 1997 (see Table III-11), an average annual growth rate of 20.0 percent. Most of this growth occurred from 1978 to 1986. In 1986, commuter enplanements increased by 1,563,642 to 1,642,759 enplanements, an average annual growth rate of 46.1 percent. In recent years, this growth has slowed considerably to a rate of 4.0 percent from 1986 to 1997 and 2.8 percent from 1991 to 1997.

International enplanements increased from 1,315,316 enplanements in 1978 to 3,892,529 in 1997, an increase of 195.5 percent at an average annual compound growth rate of 5.9 percent (see Table III-11). The international sector has maintained this fast-paced growth, recording an annual increase of 7.8 percent from 1986 to 1997. Since 1994, the first full year of operation for the new International Terminal, international enplanements have increased at the annual rate of 9.4 percent. The percentage of O'Hare's total commercial enplanements represented by international enplanements rose from 5.8 percent in 1978 to 11.2 percent in 1997.

The largest share of enplanements in 1997 belonged to United, which accounted for 15,403,416, or 44.2 percent of O'Hare enplanements (see **Table III-12**). American had the second-largest enplanement share, with 11,002,358 enplanements, or 31.8 percent. After United and American, which combined for 76.4 percent of O'Hare's total enplanements in 1997, are Simmons Airlines, an American affiliate doing business as American Eagle, with 4.3 percent, Delta with 3.1 percent and Northwest with 2.3 percent. All the remaining carriers accounted for less than 2.0 percent each.

b. Midway

In comparison to the steady growth trend at O'Hare from 1978 to 1997, Midway's history is marked with dramatic changes (see **Table III-13**). Starting from a modest 49,356 commercial enplanements in 1978, enplanement activity grew rapidly to a high of 4,157,814 total enplanements by 1990, primarily on the strength of expanded service by Midway Airlines. When Midway Airlines ceased operating in November 1991, enplanements tumbled to 2,099,636 in 1992. Southwest gradually filled that air service void. By 1994, enplanements at Midway rebounded to a then-record high of 4,467,770 as a result of increased service by Southwest and others. Midway's total commercial enplanements increased to 4,723,122 in 1997.

Domestic air carrier enplanements have, on average, accounted for 95.1 percent of total commercial enplanements at Midway from 1978 to 1997 (see Table III-13). The dramatic rise, fall and rebound of commercial activity at Midway is a direct result of the domestic service once provided by Midway Airlines and now provided by Southwest. Domestic air carrier enplanements increased from 49,356 in 1978 to 4,638,652 in 1997.

Table III-12
Chicago Airport System Forecast
O'Hare Airline Activity Shares
Enplaned Commercial Passengers

Rank (1)	Airline	Airline Enplanements 1992	1993	1994	1995	1996	1997
1	United Airlines	13,769,458	14,315,953	14,578,833	14,617,030	15,024,359	15,403,416
2	American Airlines	11,017,147	11,013,099	10,802,690	10,846,370	10,977,085	11,002,358
3	Simmons Airlines (dba American Eagle)	1,186,967	1,262,451	1,402,828	1,381,950	1,496,873	1,486,013
4	Delta Air Lines	921,215	872,883	878,739	876,409	1,087,578	1,080,494
5	Northwest Airlines	791,422	760,025	763,124	762,499	797,697	792,314
6	USAirways	413,573	431,970	542,846	558,811	577,599	614,692
7	Continental Airlines	550,890	615,614	665,821	522,523	554,110	580,909
8	Air Wisconsin (dba United Express)	1,057,962	830,204	630,605	436,774	464,901	513,614
9	Trans World Airlines	334,431	91,950	244,020	374,105	395,543	420,005
10	Air Canada	89,590	153,191	187,841	172,801	196,791	220,334
	Subtotal	30,132,655	30,347,340	30,697,347	30,549,272	31,572,536	32,114,149
	All Other	1,524,393	1,647,410	2,124,662	2,306,188	2,495,349	2,723,934
	Total	31,657,048	31,994,750	32,822,009	32,855,460	34,067,885	34,838,083

Rank (1)	Airline	Airline Percent of Total 1992	1993	1994	1995	1996	1997
1	United Airlines	43.5%	44.7%	44.4%	44.5%	44.1%	44.2%
2	American Airlines	34.8%	34.4%	32.9%	33.0%	32.2%	31.6%
3	Simmons Airlines (dba American Eagle)	3.7%	3.9%	4.3%	4.2%	4.4%	4.3%
4	Delta Air Lines	2.9%	2.7%	2.7%	2.7%	3.2%	3.1%
5	Northwest Airlines	2.5%	2.4%	2.3%	2.3%	2.3%	2.3%
6	USAir	1.3%	1.4%	1.7%	1.7%	1.7%	1.8%
7	Continental Airlines	1.7%	1.9%	2.0%	1.6%	1.6%	1.7%
8	Air Wisconsin (dba United Express)	3.3%	2.6%	1.9%	1.3%	1.4%	1.5%
9	Trans World Airlines	1.1%	0.3%	0.7%	1.1%	1.2%	1.2%
10	Air Canada	0.3%	0.5%	0.6%	0.5%	0.6%	0.6%
	Subtotal	95.2%	94.9%	93.5%	93.0%	92.7%	92.2%
	All Other	4.8%	5.1%	6.5%	7.0%	7.3%	7.8%
	Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: Chicago Department of Aviation Management Records
(1) Ranked according to 1997 results.
Note: Percentage totals may not add due to individual rounding.
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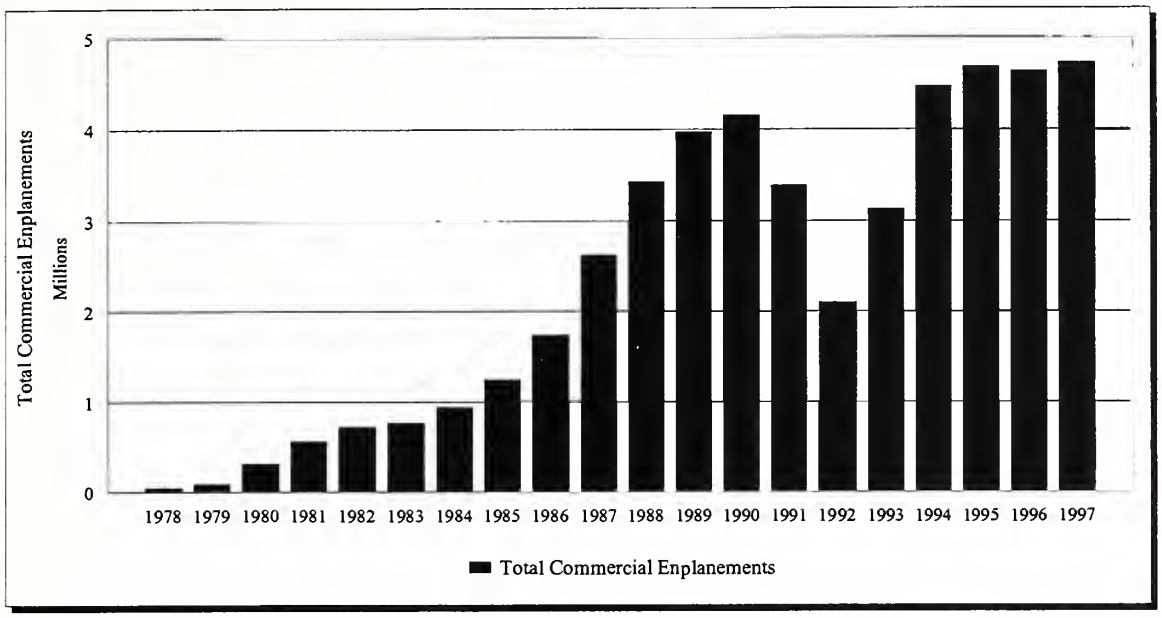
Table III-13
Chicago Airport System Forecast
Midway Historical Enplanements



Year	Domestic Enplanements			Percent of Total Midway	International Enplanements	Percent of Total Midway	Total Enplanements
	Air Carrier	Commuter	Total				
1978	49,356	0	49,356	100.0%	0	0.0%	49,356
1979	88,512	0	88,512	100.0%	0	0.0%	88,512
1980	314,239	0	314,239	100.0%	0	0.0%	314,239
1981	561,196	0	561,196	100.0%	0	0.0%	561,196
1982	719,823	0	719,823	100.0%	0	0.0%	719,823
1983	749,201	12,946	762,147	100.0%	0	0.0%	762,147
1984	935,992	2,997	938,989	100.0%	0	0.0%	938,989
1985	1,238,532	2,573	1,241,105	100.0%	0	0.0%	1,241,105
1986	1,683,716	53,789	1,737,505	100.0%	0	0.0%	1,737,505
1987	2,513,762	109,270	2,623,032	100.0%	0	0.0%	2,623,032
1988	3,186,698	242,814	3,429,512	100.0%	811	0.0%	3,430,323
1989	3,597,773	343,036	3,940,809	99.2%	33,051	0.8%	3,973,860
1990	3,738,735	396,074	4,134,809	99.4%	23,005	0.6%	4,157,814
1991	3,061,743	325,402	3,387,145	100.0%	0	0.0%	3,387,145
1992	2,030,472	69,164	2,099,636	100.0%	0	0.0%	2,099,636
1993	3,030,511	99,903	3,130,414	100.0%	0	0.0%	3,130,414
1994	4,277,439	184,313	4,461,752	99.9%	6,018	0.1%	4,467,770
1995	4,551,390	114,994	4,666,384	99.7%	12,959	0.3%	4,679,343
1996	4,543,784	82,806	4,626,590	99.9%	4,696	0.1%	4,631,286
1997	4,638,652	82,989	4,721,641	100.0%	1,481	0.0%	4,723,122
	Average Annual Compound Growth Rates						
1978-1997	27.0%	n/a	27.1%		n/a		27.1%
1986-1997	9.7%	4.0%	9.5%		n/a		9.5%
1991-1997	7.2%	-20.4%	5.7%		n/a		5.7%

Source: Chicago Department of Aviation Management Records (adjusted forCcommuter classification)

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Commuter enplanements followed a historical trend similar to that of domestic air carrier enplanements. From 1978 to 1986, Midway saw zero or very little commuter activity until the arrival of Midway Connection, the commuter affiliate of Midway Airlines, in 1987 (see Table III-13). Commuter activity more than doubled from 53,789 enplanements in 1986 to 109,270 enplanements in 1987 and reached a high of 396,074 enplanements in 1990. Midway Connection traffic ceased when Midway Airlines failed in 1991 and, by 1992, commuter traffic fell to 69,164 enplanements. Since 1992, commuter traffic has fluctuated between a high of 184,313 enplanements in 1994 to 69,164 in 1992.

International enplanements have been almost nonexistent at Midway except for 1989 and 1990, when Canadian Airlines offered scheduled service to Canada (see Table III-13). From 1978 to 1987, there were zero international enplanements. With the introduction of the Canadian Airlines service, enplanements jumped to 33,051 in 1989 and slid to 23,005 enplanements in 1990. Since 1990, only a minimal amount of international enplanements has been recorded, with 1,481 international air carrier enplanements recorded in 1997.

c. Meigs

Over the past 11 years, commercial enplanement activity at Meigs has consisted primarily of commuter aircraft service. Since 1985, total commercial enplanements ranged from a low of 12,402 in 1997 to a high of 27,720 in 1994 (see **Table III-14**). From 1985 to 1996, total commercial enplanements at Meigs decreased at an average annual rate of 4.4 percent.

2. Historical Air Cargo Tonnage

Air cargo is broken into two types: freight/express and mail. Each component has both a domestic and international segment.

a. O'Hare

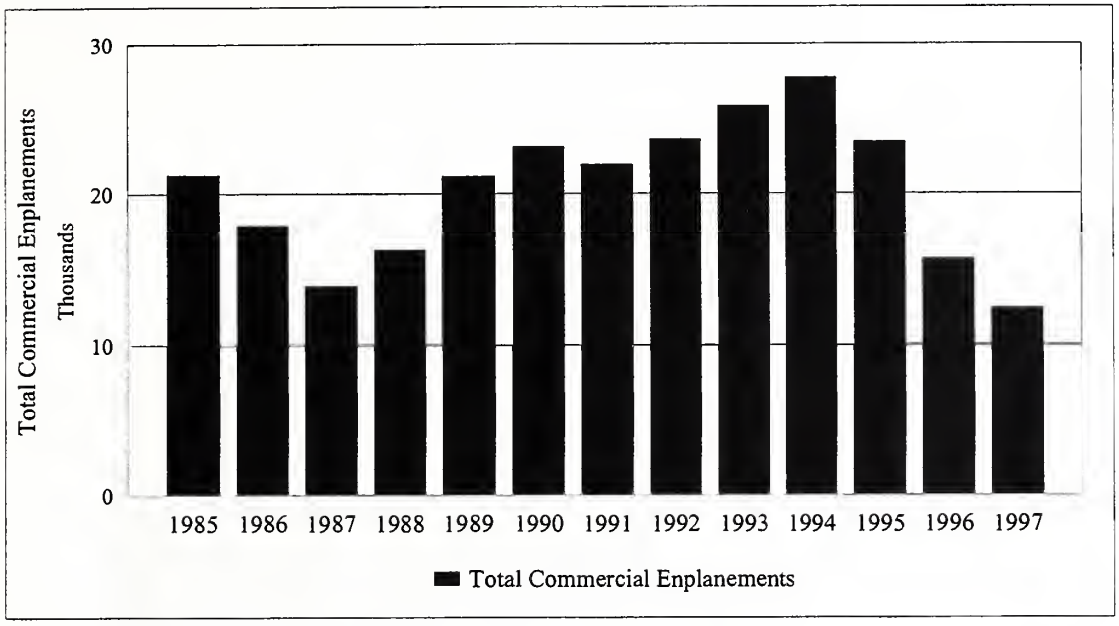
Total freight/express tonnage at O'Hare increased from 579,112 tons in 1985 to 1,284,808 tons in 1997, an average annual growth rate of 6.9 percent. The growth in international shipments was more than twice that of domestic shipments, paralleling the faster growth in international passengers and operations over the same period (see **Table III-15).**

The volume of mail freight grew from 780,753 tons in 1985 to 1,551,606 tons in 1997, an average annual growth rate of 5.9 percent. In the mail freight segment, growth in the international sector again outpaced domestic growth, albeit not by the magnitude seen in commercial freight/express.

b. Midway

Total cargo tonnage at Midway doubled from 16,248 tons in 1987 to 32,637 tons in 1997, an average annual growth rate of 7.2 percent. International cargo at Midway

Table III-14
Chicago Airports System Forecast
Meigs Historical Enplanements



Year	Total (1) Commercial Enplanements	Percent Change
1985	21,248	
1986	17,872	-15.9%
1987	13,860	-22.4%
1988	16,271	17.4%
1989	21,159	30.0%
1990	23,106	9.2%
1991	21,946	-5.0%
1992	23,603	7.6%
1993	25,832	9.4%
1994	27,720	7.3%
1995	23,448	-15.4%
1996	15,641	-33.3%
1997	12,402	-20.7%

Average Annual Compound Growth Rates	
1985-1997	-4.4%
1991-1997	-9.1%

Sources: Chicago Department of Aviation Management Records
(1) All of Meigs' commercial enplanements were on commuter aircraft.
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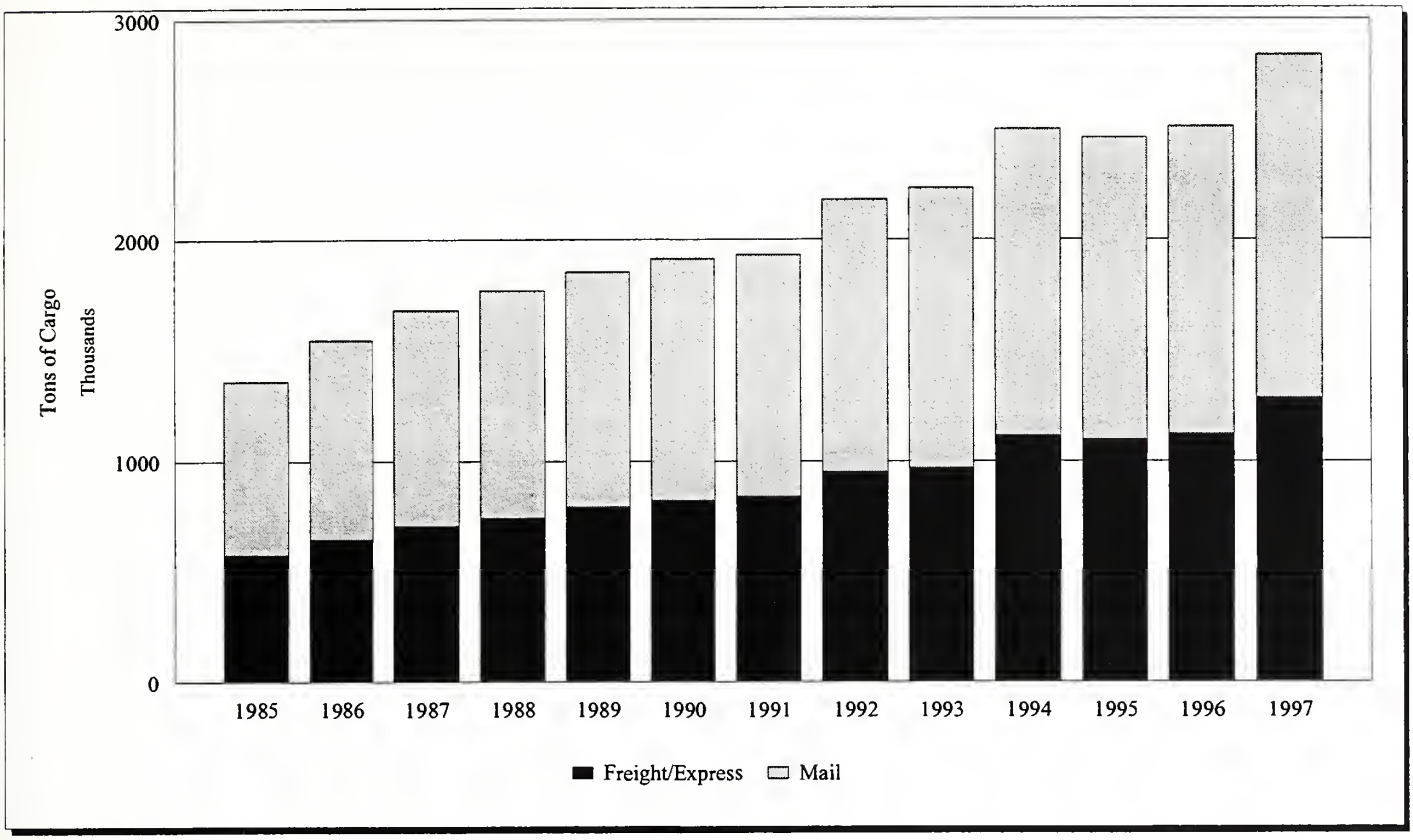
Table III-15
Chicago Airport System Forecast
O'Hare Historical Cargo Tonnage



	Freight/Express			Mail			Total Cargo			
Year	Domestic	International	Total	Domestic	International	Total	Domestic	International	Total	Percent Change
1985	369,038	210,074	579,112	187,527	14,115	780,753	556,565	224,188	1,359,865	
1986	421,593	228,897	650,490	229,902	15,801	896,193	651,495	244,698	1,546,683	13.7%
1987	423,922	286,697	710,619	243,420	16,315	970,355	667,343	303,012	1,680,974	8.7%
1988	431,349	315,245	746,593	258,405	17,350	1,022,348	689,754	332,594	1,768,941	5.2%
1989	464,022	333,746	797,768	245,293	13,647	1,056,708	709,315	347,394	1,854,476	4.8%
1990	489,429	336,102	825,531	248,921	13,391	1,087,843	738,350	349,493	1,913,374	3.2%
1991	477,548	364,587	842,135	228,770	17,608	1,088,512	706,318	382,195	1,930,647	0.9%
1992	577,036	375,158	952,194	262,338	14,922	1,229,454	839,374	390,080	2,181,648	13.0%
1993	561,030	409,292	970,322	279,688	14,070	1,264,080	840,718	423,362	2,234,402	2.4%
1994	610,268	504,815	1,115,083	253,241	16,289	1,384,613	863,509	521,104	2,499,696	11.9%
1995	572,818	525,455	1,098,273	247,154	16,886	1,362,313	819,972	542,341	2,460,586	-1.6%
1996	576,402	546,201	1,122,602	248,554	17,883	1,389,039	824,956	564,084	2,511,642	2.1%
1997	636,417	648,391	1,284,808	246,269	20,528	1,551,606	882,687	668,919	2,836,414	12.9%
	Average Annual Compound Growth Rates									
985-1997	4.6%	9.8%	6.9%	2.3%	3.2%	5.9%	3.9%	9.5%	6.3%	
991-1997	4.9%	10.1%	7.3%	1.2%	2.6%	6.1%	3.8%	9.8%	6.6%	

Source: Chicago Department of Aviation Management Records

b. Midway

Total cargo tonnage at Midway doubled from 16,248 tons in 1987 to 32,637 tons in 1997, an average annual growth rate of 7.2 percent. International cargo at Midway is virtually non-existent because of the almost exclusively domestic nature of Midway traffic (see **Table III-16**).

Domestic freight/express tonnage grew from 14,632 tons in 1985 to 23,339 tons in 1997, representing a 10-year annual growth rate of 4.8 percent. The growth rate from 1991 to 1997 has almost doubled from the growth seen from 1987 to 1997 because of cargo carriers' increased use of Midway.

3. Historical Operations Activity

Total operations at O'Hare include domestic and international passenger operations and all-cargo, military and miscellaneous operations, which include general aviation and helicopter activity. Total operations at Midway include domestic and international air carriers, commuter, all-cargo, military and general aviation operations.

a. O'Hare

Total operations at O'Hare grew steadily from 1980 to 1997, with only a few minor dips over the period (see **Table III-17**). Total operations at O'Hare increased from 724,155 in 1980 (the earliest year for which reliable records exist) to 883,761 in 1997. This increase of 159,606 operations, or 22.0 percent, represents an average annual compound growth rate of 1.2 percent.

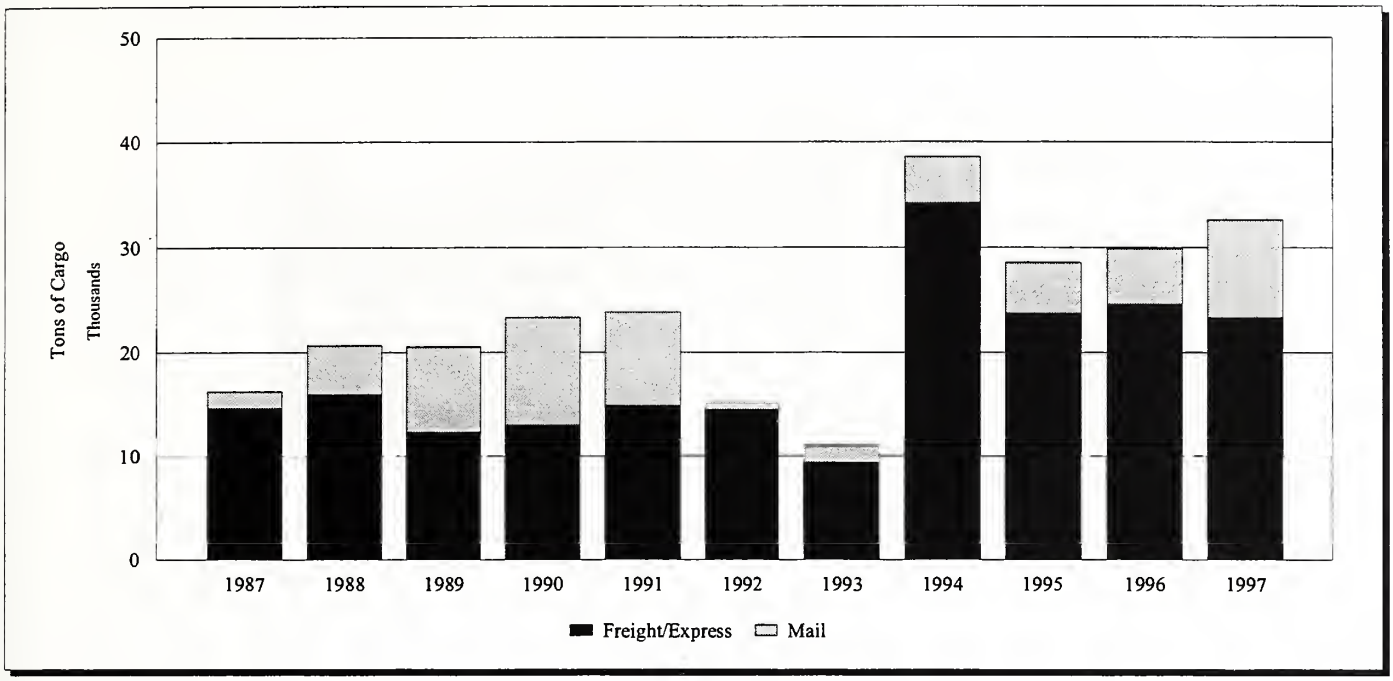
Domestic air carrier operations represent the largest portion of total operations at O'Hare, accounting for approximately 68.6 percent of the 883,761 operations in 1997. This sector increased from 508,030 operations in 1980 to 606,618 in 1997. This increase of 98,588 operations, or 19.4 percent, represents an average annual compound growth rate of 1.0 percent.

International air carrier operations more than doubled from 26,211 operations in 1980 to 66,558 in 1997, an average annual growth rate of 5.6 percent. International operations experienced a surge of growth from 1986 to 1997, increasing at an average annual compound growth rate of 7.0 percent.

Commuter operations at O'Hare have fluctuated widely, increasing from 113,439 operations in 1980 to a high of 169,170 in 1991 and then falling to 140,762 operations in 1997. The decrease in commuter operations since 1991 is primarily the result of airline operating strategies to replace commuter flights with air carrier service. From 1980 to 1997, commuter operations recorded an increase of approximately 24.1 percent at an average annual compound growth rate of 1.3 percent.

All-cargo operations at O'Hare increased from 11,904 in 1980 to 20,630 in 1997, an increase of 8,726 operations, or 73.3 percent, at an average annual compound growth rate of 3.3 percent. Although annual cargo operations generally increased over the

Table III-16
Chicago Airport System Forecast
Midway Historical Cargo Tonnage



	Freight/Express			Mail			Total Cargo			
Year	Domestic	International	Total	Domestic	International	Total	Domestic	International	Total	Percent Change
1987	14,632	0	14,632	1,616	0	1,616	16,248	0	16,248	n/a
1988	15,976	0	15,976	4,683	0	4,683	20,659	0	20,659	27.1%
1989	12,250	78	12,328	8,210	10	8,220	20,460	88	20,548	-0.5%
1990	12,937	105	13,042	10,300	10	10,310	23,237	115	23,352	13.6%
1991	14,890	0	14,890	8,933	0	8,933	23,823	0	23,823	2.0%
1992	14,544	0	14,544	691	0	691	15,235	0	15,235	-36.0%
1993	9,398	0	9,398	1,614	0	1,614	11,012	0	11,012	-27.7%
1994	34,234	0	34,234	4,350	0	4,350	38,584	0	38,584	250.4%
1995	23,727	0	23,727	4,865	0	4,865	28,592	0	28,592	-25.9%
1996	24,616	0	24,616	5,268	0	5,268	29,884	0	29,884	4.5%
1997	23,339	0	23,339	9,285	14	9,298	32,624	14	32,637	9.2%
	Average Annual Compound Growth Rates									
1987-1997	4.8%	n/a	4.8%	19.1%	n/a	19.1%	7.2%	n/a	7.2%	
1991-1997	7.8%	n/a	7.8%	0.6%	n/a	0.7%	5.4%	n/a	5.4%	

Sources: Chicago Department of Aviation Management Records

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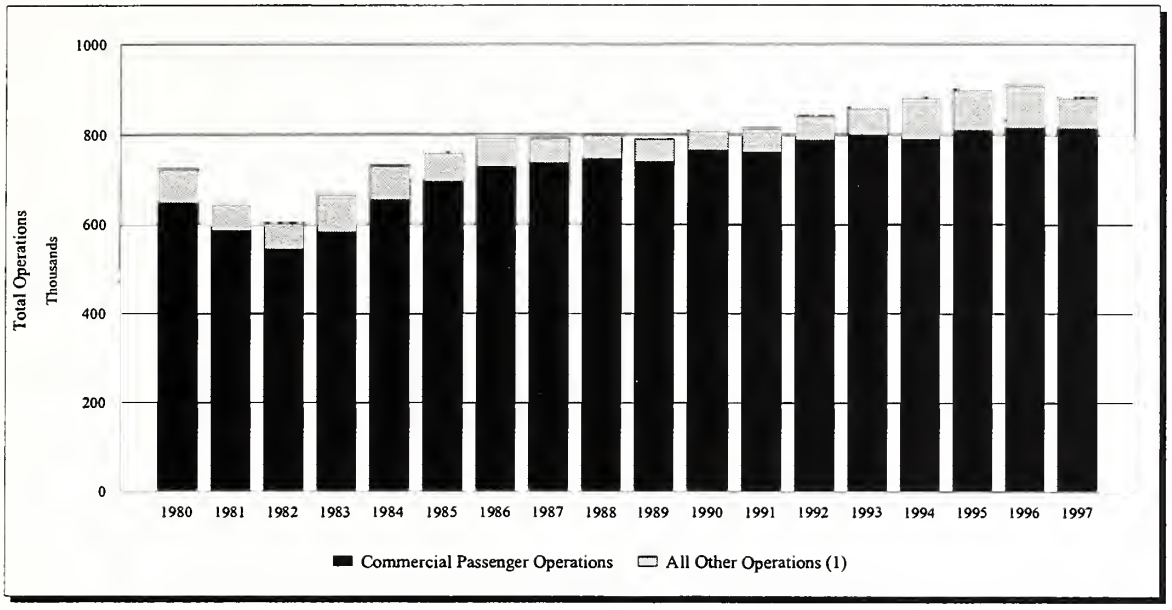
Table III-17
Chicago Airport System Forecast
O'Hare Historical Operations



Year	Domestic Air Carrier	International Air Carrier	Total Air Carrier	Commuter	Total Commercial Passenger	All-Cargo	Military	Misc. (2)	Total Operations
1980	508,030	26,211	534,241	113,439	647,680	11,904	3,368	61,203	724,155
1981	424,629	24,157	448,786	136,809	585,595	10,373	3,013	46,633	645,614
1982	387,608	24,253	411,861	132,059	543,920	10,450	3,466	45,959	603,795
1983	426,132	23,899	450,031	132,864	582,895	23,737	3,288	57,360	667,280
1984	487,714	27,105	514,819	140,322	655,141	23,844	3,550	49,207	731,742
1985	518,729	30,217	548,946	147,110	696,056	22,165	3,454	39,305	760,980
1986	551,844	31,736	583,580	145,228	728,808	16,881	3,406	45,843	794,938
1987	563,204	34,366	597,570	139,985	737,555	16,288	3,729	35,083	792,655
1988	564,170	33,755	597,925	148,683	746,608	14,177	5,478	34,302	800,565
1989	551,484	36,378	587,862	152,817	740,679	17,497	3,700	28,962	790,838
1990	562,957	38,547	601,504	163,848	765,352	14,840	3,124	26,193	809,509
1991	551,203	40,722	591,925	169,170	761,095	15,909	2,827	33,969	813,800
1992	579,437	46,268	625,705	161,966	787,671	16,324	3,418	33,684	841,097
1993	601,489	51,922	653,411	145,326	798,737	16,167	3,475	41,365	859,744
1994	599,260	53,644	652,904	136,636	789,540	16,925	3,327	73,199	882,991
1995	604,560	58,834	663,394	146,440	809,834	18,338	3,288	68,819	900,279
1996	603,172	61,813	664,985	149,652	814,637	19,184	2,938	72,834	909,593
1997	606,618	66,558	673,176	140,762	813,938	20,630	2,170	47,023	883,761
	Average Annual Compound Growth Rates								
1980-1997	1.0%	5.6%	1.4%	1.3%	1.4%	3.3%	-2.6%	-1.5%	1.2%
1986-1997	0.9%	7.0%	1.3%	-0.3%	1.0%	1.8%	-4.0%	0.2%	1.0%
1991-1997	1.6%	8.5%	2.2%	-3.0%	1.1%	4.4%	-4.3%	5.6%	1.4%

Source: Chicago Department of Aviation Management Records

(1) All Other Operations include All-Cargo, Military and Miscellaneous (General Aviation & Helicopter) operations

(2) Miscellaneous operations include General Aviation and Helicopter operations

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historical period, there were some significant peaks and valleys. After decreasing from 11,904 operations in 1980 to 10,450 operations in 1982, all-cargo operations more than doubled to 23,844 by 1984. This increase was short lived as all-cargo operations slid to 14,177 in 1988. These dramatic fluctuations were primarily the result of expanded all-cargo service introduced by Flying Tigers in the early 1980s, followed by its eventual service cutbacks. Since 1991, all-cargo operations have exhibited a more steady growth trend, increasing from 15,909 operations to 20,630 operations in 1997 at an average annual compound growth rate of 4.4 percent.

Military operations have generally remained between approximately 2,800 and 4,000 per year from 1980 to 1996. With the planned relocation of the military facilities at O'Hare, military operations will decrease to minimal levels.

General aviation operations include aircraft privately owned and operated by the general public, corporate aircraft and commercial helicopter operations. Total general aviation operations have fluctuated significantly from 61,203 operations in 1980 to a low of 26,193 operations in 1990 and then rising to 47,023 in 1997. The trend of declining activity from 1980 to 1990 in large part was caused by decreasing private general aviation activity at O'Hare, which was similar to the national trend. General aviation activity has increased since 1993, corresponding to the improvement in general economic conditions.

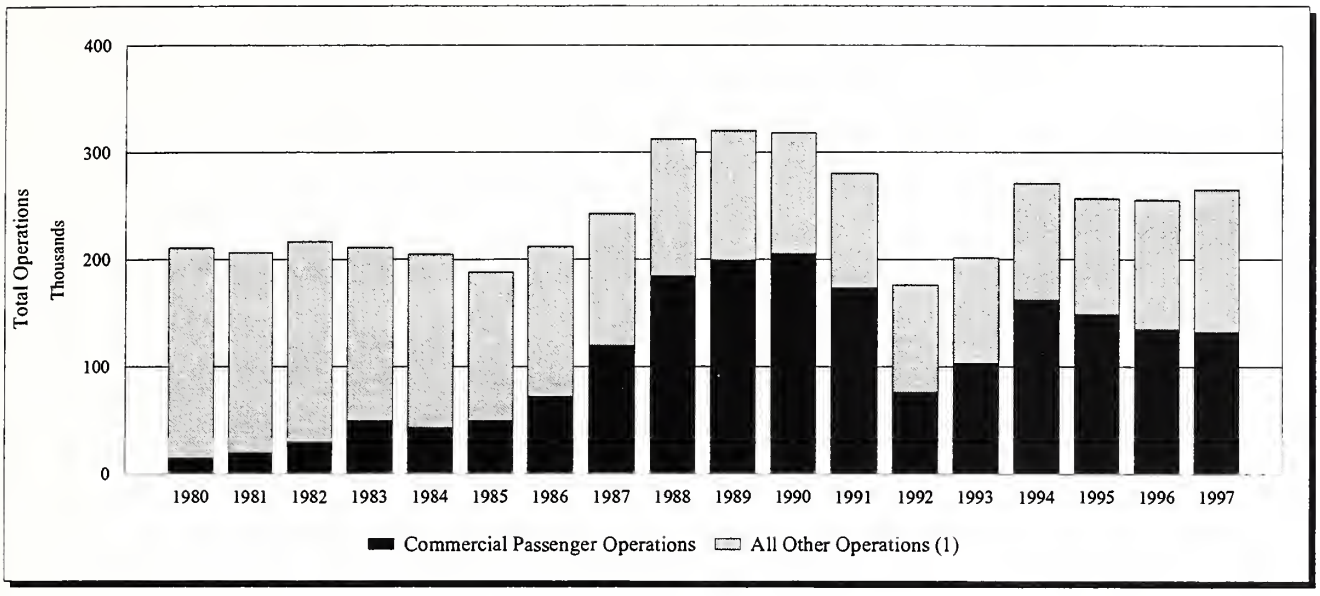
b. Midway

Total operations increased from 210,904 in 1980 to 265,572 in 1997, an increase of 54,668, or 25.9 percent, at an average annual compound growth rate of 1.4 percent (see **Table III-18**). The history of operations at Midway follows a trend similar to its enplanement growth. A surge of activity in the late 1980s, resulting from the expansion of Midway Airlines' service, was followed by a falloff in 1991 after Midway Airlines' demise. Southwest Airlines generated a strong rebound in operations from 1992 to 1997. Growth in domestic air carrier activity accounts for most of the increase in total operations at Midway from 1980 to 1997.

Domestic air carrier activity represents approximately 43.8 percent of total operations at Midway, or 116,246 of 265,572 operations in 1997. Growth in this category equaled 102,299 operations at an average annual compound growth rate of 13.3 percent from 1980 to 1997. This rapid growth was not without a setback. In 1991, after 10 years of rapid growth primarily caused by the expansion of Midway Airlines, its demise resulted in a decrease in operations from 126,234 in 1990 to 107,760 in 1991 and to 62,307 in 1992. Domestic air carrier operations climbed to 80,496 in 1993, when Southwest began to expand its operation at Midway and to 116,246 by 1997.

From 1980 to 1997, Midway recorded 3,583 international air carrier operations and, except for 1989 and 1990, when Canadian Airlines offered a small amount of scheduled service to Canada, there was no international service, or only a token amount. No international activity was reported in 1997.

Table III-18
Chicago Airports System Forecast
Midway Historical Operations



Year	Domestic Air Carrier	International Air Carrier	Total Air Carrier	Commuter	Total Commercial Passenger	All-Cargo	Military	Misc. (2)	Total Operations
1980	13,947	0	13,947	14	13,961	0	11,385	185,558	210,904
1981	19,583	0	19,583	0	19,583	0	13,598	173,286	206,467
1982	29,157	0	29,157	0	29,157	0	9,903	177,705	216,765
1983	32,457	0	32,457	17,063	49,520	298	7,996	153,305	211,119
1984	41,199	0	41,199	2,012	43,211	0	3,597	157,992	204,800
1985	48,420	0	48,420	1,153	49,573	0	2,993	135,471	188,037
1986	61,196	0	61,196	10,982	72,178	0	2,872	136,870	211,920
1987	91,949	0	91,949	27,917	119,866	208	2,650	120,144	242,868
1988	131,289	10	131,299	53,302	184,601	680	2,865	124,517	312,663
1989	124,429	1,846	126,275	73,352	199,627	572	2,426	117,928	320,553
1990	126,234	1,328	127,562	77,916	205,478	0	2,928	110,088	318,494
1991	107,760	0	107,760	66,125	173,885	0	1,394	105,137	280,416
1992	62,307	0	62,307	14,107	76,414	0	1,466	98,350	176,230
1993	80,496	0	80,496	22,851	103,347	72	1,461	96,653	201,533
1994	121,379	109	121,488	41,023	162,511	584	906	107,170	271,171
1995	122,022	214	122,236	26,878	149,114	878	1,560	105,664	257,216
1996	116,573	86	116,659	18,504	135,163	876	2,388	117,286	255,713
1997	116,244	0	116,244	16,351	132,595	1,128	1,298	130,551	265,572
	Average Annual Compound Growth Rates								
1980-1997	13.3%	n/a	13.3%	51.5%	14.2%	n/a	-12.0%	-2.0%	1.4%
1986-1997	6.0%	n/a	6.0%	3.7%	5.7%	n/a	-7.0%	-0.4%	2.1%
1991-1997	1.3%	n/a	1.3%	-20.8%	-4.4%	n/a	-1.2%	3.7%	-0.9%

Source: Chicago Department of Aviation management records
(1) All Other Operations includes All-Cargo, Military and Miscellaneous (General Aviation & Helicopter) operations
(2) Miscellaneous operations includes General Aviation and Helicopter operations
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Commuter operations followed a historical trend similar to that of domestic air carrier operations. From almost none in 1980, commuter operations increased to a high of 77,916 in 1990. This increase was from the introduction of service by Midway Connection, the commuter affiliate of Midway Airlines. With the demise of Midway Airlines, Midway Connection also ceased operations, and the Airport's total commuter operations tumbled to 14,107 by 1992. Since 1992, the number of commuter operations has fluctuated greatly as new carriers have entered the market and then withdrawn. Total commuter operations were 16,349 in 1997.

All-cargo operations at Midway were almost nonexistent until 1994. During 12 of the 16 years from 1980 to 1996, Midway recorded fewer than 300 annual all-cargo operations and, during nine of those 12 years, recorded zero all-cargo operations. In 1994, Airborne Express began providing regularly scheduled all-cargo service, with 584 all-cargo operations that year, which increased to 878 operations in 1995, 876 in 1996 and 1,128 in 1997. Airborne Express is the only all-cargo carrier providing service at Midway.

Military operations declined from a high of 13,598 in 1981 to 1,298 in 1997. Most of this decline occurred from 1982 to 1985 and since 1985, military activity has ranged from approximately 1,000 to 3,000 annual operations.

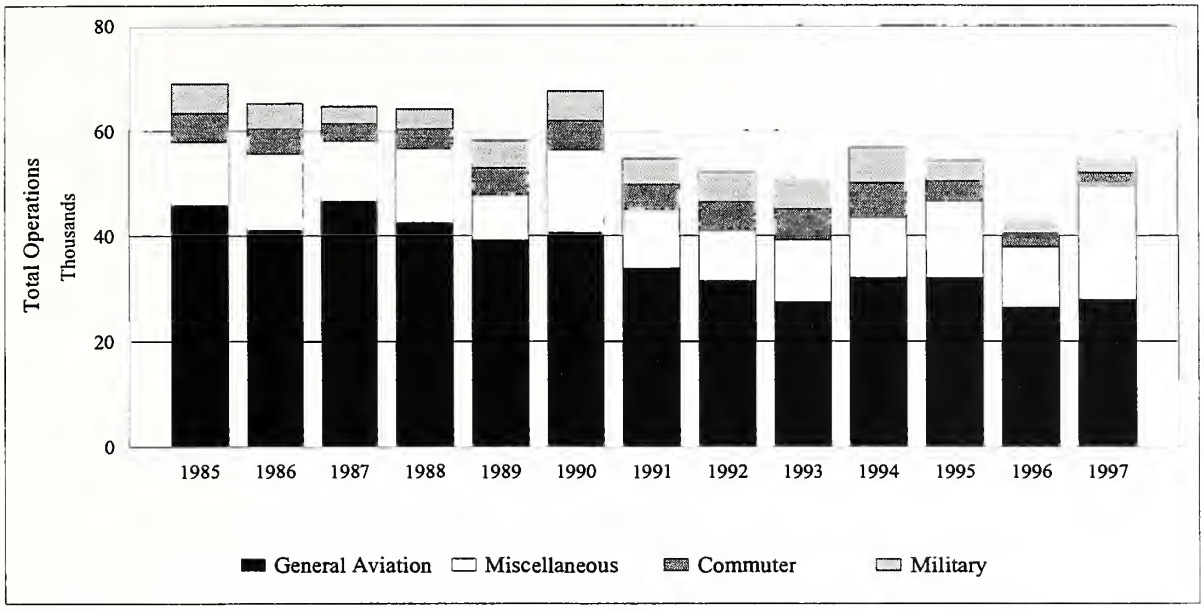
General aviation operations include aircraft privately owned and operated by the general public, corporate aircraft and commercial helicopter operations. Total general aviation operations recorded a steady decline, falling from 185,558 in 1980 to 96,653 in 1993. The falloff resulted from a decrease in general aviation operations, which mirrored a national trend over this same period. This downward trend reversed itself somewhat after 1993, climbing to 130,551 operations in 1997. Since 1980, total general aviation operations have decreased from 185,558 operations to 130,551 in 1997, for a total decrease of 29.6 percent at an average annual rate of -1.8 percent.

c. Meigs

Total operations at Meigs have generally declined since 1985 (see **Table III-19**), the earliest year for which reliable operations records are available. In 1985, total operations were 64,510, and they fell to 52,071 in 1997, a decrease of 13,439, or 19.3 percent, at an average annual compound growth rate of -1.8 percent. Statistics for 1996 and 1997 were impacted because Meigs was closed from September 30, 1996 to February 10, 1997. Since 1985, total operations at Meigs Field have on average been comprised of approximately 66.0 percent general aviation, 22.0 percent miscellaneous operations, 9.0 percent commuter activity and 3.0 percent military operations. There was no all-cargo activity at Meigs from 1985 to 1997.

All categories of operations at Meigs have experienced a general decline in activity since 1985. General aviation operations declined from 45,860 in 1985 to 28,002 in 1997, a decline of -38.9 percent at an average annual compound shrinkage rate of -4.0 percent. Commuter activity experienced a similar rate of decline falling from 5,566 operations in 1985 to 2,420 operations in 1997, a decrease of -56.5 percent at an average annual compound growth rate of -6.7 percent. Most of the falloff in

Table III-19
Chicago Airport System Forecast
Meigs Historical Operations



Year	Commuter (1)	All-Cargo	Military	General Aviation	Misc. (2)	Total Operations
1985	5,566	0	1,088	45,860	11,996	64,510
1986	4,850	0	1,155	41,140	14,400	61,545
1987	3,336	0	1,276	46,605	11,404	62,621
1988	3,851	0	6,025	42,511	14,014	66,401
1989	5,178	0	1,661	39,182	8,514	54,535
1990	5,662	0	3,062	40,647	15,609	64,980
1991	4,838	0	1,272	33,878	11,050	51,038
1992	5,515	0	1,245	31,514	9,452	47,726
1993	5,869	0	1,355	27,502	11,699	46,425
1994	6,612	0	1,123	32,102	11,347	51,184
1995	3,766	0	658	32,044	14,590	51,058
1996	2,630	0	995	26,472	11,388	41,485
1997	2,420	0	42	28,002	21,607	52,071
	Average Annual Compound Growth Rates					
1986-1997	-6.7%	n/a	-23.8%	-4.0%	5.0%	-1.8%
1991-1997	-10.9%	n/a	-43.4%	-3.1%	11.8%	0.3%

Source: Chicago Department of Aviation management records

(1) All commercial passengers were carried on commuter aircraft.

(2) Miscellaneous operations include Miscellaneous and Helicopter operations

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commuter operations has occurred since 1994, when operations fell from an 11 year high of 6,612.

Military operations have declined from 1985 to 1997, with annual operations around 1,200 per year, with the exception of a large surge in activity to 6,025 operations in 1988 and 3,062 operations in 1990. Military operations fell to an 11 year low of 658 in 1995 and rebounded slightly to 995 in 1996, then fell to 42 operations in 1997. General aviation operations have averaged approximately 12,000 operations per year from 1985 to 1996, with 21,607 reported in 1997.

IV. DOMESTIC ORIGIN & DESTINATION ENPLANEMENT FORECAST

Domestic origin and destination (O&D) passengers are those passengers who arrive at or depart from an airport within the United States; they do not change aircraft at the airport. The total number of O&D passengers is a reflection of a region's attractiveness as a place in which to live, visit, work and conduct business. Domestic O&D passengers include both resident and non-resident air travelers. This chapter describes the forecast of unconstrained Chicago Region domestic O&D demand, which is the first step in determining the Chicago Airport System's future air passenger activity.

A. DOMESTIC O&D ENPLANEMENT FORECAST METHODOLOGY

The forecast of domestic O&D enplanements employed a methodology which has been successfully used and accepted at Seattle-Tacoma International Airport, Los Angeles International Airport, Detroit Metropolitan Wayne County Airport, Miami International Airport and others. The method employs the most widely used forecasting technique used by industrial and social science research - linear regression. The methodology involves collecting and analyzing historical data and uses standard statistical techniques to identify relationships between elements of historical information, which then can be used to project future activity.

Historical O&D enplanements data from 1970 to 1997 was paired against demographic data (population, employment and PCPI) and domestic yield (airline revenue per passenger mile) to establish a statistical relationship between the demographic variables and the demand for air travel. With this mathematical relationship established, the NPA's forecast of demographic variables was used to project future levels of O&D enplanements. Statistical filtering techniques were used to select the forecast series having the highest level of correlation between the elements analyzed, which established the basis for the O&D forecast.

1. Forecast Base

In 1978, O'Hare handled over 99.8 percent of the Chicago Region's domestic O&D traffic. Commercial air carriers had essentially ceased to use Midway, but certain air carriers have since reintroduced service to Midway. By 1997, O'Hare served approximately 77 percent of the Chicago Region's total domestic O&D demand, Midway served approximately 23 percent, and Meigs served less than 1 percent. Meigs has a short runway and limited facilities, so it serves only a narrow local air service market.

The base of the forecast is the total number of the Chicago Region's historical O&D enplanements (see **Table IV-1**). Domestic O&D demand for the Chicago Region from 1986 through 1997 is broken down by airport and each airport's percentage share of total regional enplanements.

Table IV-1
Chicago Airport System Forecast
Total Chicago Region Domestic O&D Enplanements

Year	O'Hare Enplanements	O'Hare Percentage	Midway Enplanements	Midway Percentage	Meigs Enplanements	Meigs Percentage	Total Region
1986	10,347,671	86.6%	1,579,061	13.2%	17,872	0.1%	11,944,604
1987	10,446,530	82.3%	2,240,395	17.6%	13,860	0.1%	12,700,785
1988	10,789,357	80.8%	2,545,641	19.1%	16,271	0.1%	13,351,269
1989	10,693,421	79.5%	2,742,020	20.4%	21,159	0.2%	13,456,600
1990	11,233,026	80.1%	2,774,245	19.8%	22,000	0.2%	14,029,271
1991	11,408,803	82.8%	2,352,128	17.1%	20,690	0.2%	13,781,621
1992	12,215,102	86.3%	1,919,128	13.6%	22,830	0.2%	14,157,060
1993	11,831,612	80.1%	2,904,886	19.7%	25,520	0.2%	14,762,018
1994	12,645,407	74.6%	4,275,374	25.2%	26,960	0.2%	16,947,741
1995	13,245,378	75.4%	4,291,250	24.4%	23,230	0.1%	17,559,858
1996	13,575,872	76.3%	4,199,655	23.6%	15,440	0.1%	17,790,967
1997	13,576,616	76.8%	4,081,943	23.1%	12,540	0.1%	17,671,099
Average Annual Compound Growth Rate from 1986 - 1997							
	2.5%		9.0%		-3.2%		3.6%

Source: USDOT O&D Ticket Survey via Data Base Products, Inc.

2. Regression Analysis

A regression analysis forecasting approach was chosen for this portion of the study. It compares proven relationships between population, PCPI and yield (a measure of the cost of flying) to domestic per capita O&D passenger activity. A mathematical regression analysis model was developed to correlate the past relationship of these factors to domestic O&D enplanements and then to project this relationship using independent forecasts of these economic/demographic variables. Independent variable inputs were tested, and a simple trend line was established to test the resulting projection.

Regression analyses of socio-economic and demographic data with aviation passenger statistics provide a structured set of relationships between these factors and air passenger demand. Four steps were required to set up the regression analysis:

- Selecting the dependent variable
- Selecting the independent variables
- Developing the regression equation
- Identifying forecast values for the independent variables

The dependent variable selected for this analysis was the Chicago Region's historical annual domestic per capita O&D enplanements. The level of per capita domestic O&D enplanements typically reflects the socio-economic characteristics of an air trade area's population. O&D passenger demand results from the population, income and job growth in and the business, convention, pleasure and other trips to the Chicago Region.

Total airport passenger activity was not chosen as the appropriate variable because it encompasses connecting passenger activity whose demand for air service is driven by factors not directly related to the Chicago Region's demographic and economic characteristics. Connecting activity reflects the quantity and quality of air service offered, typically gauged by departure frequency and the number of destinations served. Therefore, the Chicago Region's connecting enplanements have been forecast separately.

These three independent variables were used in this forecast:

- Population - The number of persons residing in the region is the primary input to the regression.

- Per Capita Personal Income - This factor indicates a relationship between the wealth of the citizens of the Chicago Region with the level of domestic per capita O&D enplanements. Residents with a higher relative income levels are more likely to travel by air.

- Cost of Airline Travel (Yield) - The travel cost to individuals is reflected in the ticket price, which is recorded as "yield" by the airlines. For any product, demand is inversely related to cost (i.e., more people will fly as ticket prices decline). Coupled with per capita income projections, changes in yield normally provide a good indication of potential future O&D enplanements. Over the long term, the relative cost of air travel has decreased on a constant dollar basis.

Other independent variables, including employment, were also tested for use in the regression analysis.

3. Forecast Values

Population and per capita personal income data from the NPA was used in the forecast. Because the NPA projections are done on a national basis, they provide an independent evaluation of the population and economic growth for the Chicago Region.

The yield (or ticket price) data for the Chicago Region forecast was based upon the FAA's Form 41 data surveys for historical information and the FAA Aviation Forecast 1998-2009 (March 1998). This information shows that constant dollar domestic yield (in 1997 dollars) in 1980 was approximately 22 cents per domestic passenger revenue mile. In the 1990s, constant dollar yields continued to decline, reaching a low of approximately 13.7 cents per domestic passenger mile in 1997. From 1997 to 2009, the FAA foresees a 1.1 percent average annual decrease in domestic yield. In the absence of a FAA forecast past 2009, the yield value was extrapolated through 2012 for this forecast.

This study relied on FAA forecasts of national yields rather than attempting a separate forecast of regional or local yields. FAA national yield data is based on a multi-variant analysis of complex information and reflects what the FAA believes to be the probable results of the interaction between both macro-economic factors (i.e., aggregate demand, fuel prices, inflation) and industry trends.

To examine the suitability of applying national yield information to a local study, growth rates achieved through historical regional information was compared to national yield information over the same time period. The historical five-year average annual growth rate for the regional yield was -1.97 percent, and the national yield declined -1.96 percent per annum. The variance between the historical regional and national yields was less than one-tenth of 1 percent.

Another examination was done to question the sustainability of the declining trend in national yield. While inflation adjusted (constant dollar) yields have declined significantly at an average annual compound growth rate of -2.53 percent from 1990 to 1997; the sustainability of that level of decline is doubtful. The FAA projections indicate that the rate of inflation-adjusted annual decline will slow to approximately nine-tenths of 1 percent from 1997 to 2012. The more modest decline of yield in the forecast period is reflective of the maturity of the competitive market for domestic air service. Regional demand forecasts are expected to show this same moderation in yield decline.

Representative five-year increments of the actual values used in the Chicago Region domestic O&D forecast are shown in **Table IV-2.**

Table IV-2
Chicago Airport System Forecast
Chicago Region Demographic and Economic Values

	Year	Population	Per Capita Personal Income	National Average Yield (cents)
Actual				
	1980	8,113,300	$21,157	21.88
	1985	8,129,640	22,949	17.36
	1990	8,257,100	25,266	16.13
	1997	8,659,580	28,292	13.71
Forecast	2002	8,746,550	$30,640	12.72
	2007	8,848,420	32,531	12.23
	2012	8,992,360	34,383	11.66

Sources: NPA and FAA Aviation Forecasts (in 1997 constant dollars)
Landrum & Brown Projection

4. Regression Equation

Regression equations relating various combinations of the independent variables to 26 years of historical aviation demand were created. These equations were regressed using historical data for domestic O&D demand of the Chicago Region airports and testing various formula combinations. This analysis identified an equation that used the independent variables of per capita personal income and national domestic average revenue per passenger mile as the most logical method for forecasting per capita domestic O&D enplanements for the Chicago Region. The regression equation, shown in **Table IV-3**, is an excellent predictor of domestic O&D activity based upon a very high correlation coefficient, termed R^2.

Table IV-3
Chicago Airport System Forecast
Forecast Equation

Per Capita Domestic O&D Enplanements = Population * [Constant + (PCPI * X_1Coefficient) + (Yield * X_2 Coefficient)]

Equation Components

Population	=	Chicago Region population (13 county).
Constant	=	Mathematical constant derived using regression analysis. The approximate value of this constant is -.7642909.
PCPI	=	Chicago Region total personal income divided by total Chicago Region population.
X_1 Coefficient	=	Mathematical coefficient derived using regression analysis. The approximate value of this coefficient is .000120864.
Yield	=	Airline domestic passenger revenue divided by airline domestic passenger revenue miles.
X_2 Coefficient	=	Mathematical coefficient derived using regression analysis. The approximate value of this coefficient is -2.3126513.

Regression Analysis Characteristics

Constant	-.7642909
Standard error of Y estimate	.08790769
R^2	.9552529
Number of observations	26
Degrees of freedom	24
X_1 Coefficient	.000120864
X_7 Coefficient	-2.3126513
Standard error of X_1 Coefficient	.00002
Standard error of X_2 Coefficient	1.47662968

The correlation coefficient is a statistical measure showing the relationship between changes in the values of independent variables with changes in the values of dependent variables. A perfect correlation of 1.0 would mean that each change in the value of the independent variable would translate into a change of equal magnitude in the dependent variable. In the case of an R^2 value of 1.0, movement in the independent variable would be an excellent predictor of what would happen to the dependent variable - they would move concurrently. In statistical analysis, the closer the R^2 value is to 1.0, the higher the confidence that movements in independent variables will produce the predicted movement in the dependent variable.

An additional analysis was completed to test the reasonableness of the forecast by projecting a simple trend line of historical domestic O&D data into the future. This trend line produced a projection similar to the population and demographic regression analysis.

B. DOMESTIC O&D ENPLANEMENT FORECAST SUMMARY

Domestic O&D enplanements in the Chicago Region are forecast to increase from 17.6 million in 1997 to 25.2 million in 2012, an average annual increase of 2.4 percent. This is in contrast to the 4.0 percent average annual growth rate over the last 26 years, reflecting the maturity of the regional domestic O&D market. The Chicago Region domestic O&D enplanements forecast is shown in **Table IV-4.**

Table IV-4
Chicago Airport System Forecast
Total Chicago Region Domestic O&D Enplanements

	Year	Enplanements
Actual	1986	11,944,604
	1987	12,700,785
	1988	13,351,269
	1989	13,456,600
	1990	14,029,271
	1991	13,781,621
	1992	14,157,060
	1993	14,762,018
	1994	16,947,741
	1995	17,559,858
	1996	17,790,967
	1997	17,761,099
Forecast	2002	20,640,000
	2007	22,820,000
	2012	25,180,000
Average Annual Compound Growth Rates		
	1986 - 1997	3.6%
	1990 - 1997	3.4%
	1997 - 2002	3.2%
	2002 - 2007	2.0%
	2007 - 2012	2.0%
	1997 - 2012	2.4%

Source: USDOT O&D Ticket Survey via Data Base Products, Inc.

V. DOMESTIC O&D MARKET SHARE BY AIRPORT

Travelers within the Chicago Region can choose from three airports: O'Hare, Midway and Meigs. This chapter discusses how O&D demand is allocated and then forecast for each airport in the System. O'Hare and Midway serve as the Chicago Region's principal commercial service airports. Meigs serves a very limited segment of demand.

As the principal airport serving the largest metropolitan area in the Midwest, O'Hare serves the greatest share of the Chicago Region's O&D passengers. It is positioned as an international gateway and has the distinction as a key U.S. connecting point for two major airlines. Midway's share of the Chicago Region's activity is based on its ability to serve selected demand segments, including price-sensitive segments of the Chicago Region's O&D passengers. With diminishing traffic and limited use for mostly private and corporate aircraft, Meigs is scheduled to close in 2002.

In 1997, O'Hare served approximately 77 percent of the Chicago Region's domestic O&D demand, and Midway served approximately 23 percent. Meigs served less than 1 percent of the Chicago Region's O&D activity. While domestic O&D demand at both O'Hare and Midway has grown over the long term, O'Hare's share of regional domestic O&D activity has declined, and Midway's share has increased proportionally. The rise and fall in the activity of carriers at Midway is reflected in the annual changes in total enplanements.

The future allocation of demand among the Chicago Region airports is affected by several factors that influence air travelers' choice of airports. This chapter reviews airport factors that influence use, presents the methodology for forecasting future traffic distribution among the airports and calculates the future unconstrained domestic O&D enplanement volumes at O'Hare and Midway.

A. FACTORS AFFECTING AIR TRAVELERS' AIRPORT CHOICE

The demand for commercial air travel is a derived demand--people travel by air to engage in some other activity. Air travelers measure the cost and convenience of the various travel options in order to select the most appropriate path to their destinations.

1. Air Service Product Offering

The relative convenience of an air trip is defined by a combination of air service components that, for purposes of determining air travelers' choice of airports, can be summarized by two primary factors:

- Available Air Service - Defined primarily by the number of nonstop and direct flights offered at each airport and the frequency of service in each city/market pair. Secondary conditions include the time of arrival/departure, fare level, choice of airline, type of aircraft and class of service.

- Relative Airport Accessibility - Expressed as the travel time to the available airports, which factors in elements such as length of commute, possible delay times and alternative means of access (i.e., bus, private car, rail, subway line).

2. Air Travelers' Characteristics

The air traveler judges the relative convenience of the available options based on the purpose of the trip and such personal characteristics as sensitivity to the cost of air travel. A person with higher disposable income will typically be less sensitive to fare prices than a person with less disposable income. Also, the purpose of the trip is important in predicting an air traveler's behavior. An air traveler may view the convenience of a flight differently depending on whether the trip is for business or leisure. Business travelers are likely to be more sensitive to time than to cost, whereas leisure travelers are generally more accepting of additional travel time if they can save money.

3. Time (Distance) to Ultimate Destination

Total travel time also is an important consideration in many air travel decisions. For a short trip, the travel time to and from the airport can represent 50 percent or more of the total travel time. If the traveler is on a day trip, such factors as quick travel time to the airport and frequent nonstop air service are normally more important. For a long trip (i.e., across the United States), the ground travel time often is a minor part of the total trip time, making the ground travel time and frequency of flights less important. For extremely long trips (i.e., international flights), the relative importance of travel time, frequency of flights and the number of aircraft changes decreases because the total trip is likely to take a day or more. For this reason, one daily flight to Rome from O'Hare may be sufficient, while a heavily traveled market, such as to New York, requires multiple daily flights from both O'Hare and Midway.

B. COMPARISON OF CHICAGO REGION AIRPORTS

O'Hare and Midway are only 15 miles apart, so both airlines and passengers have a choice of airports, adding flexibility to the Chicago Region's aviation market. Four airlines provide scheduled service at both O'Hare and Midway. **Table V-1** illustrates the approximate travel times to the primary airports from the central business district in downtown Chicago.

Table V-1
Chicago Airport System Forecast
Travel Times to Airports

Airport	Miles	Travel Time in Minutes
O'Hare	17	50
Midway	11	20

Sources: Official Airline Guide, Business Travel Planner

Approximately 72 percent of the Chicago Region's population lives within 30 miles of O'Hare, or less than an hour drive. A similarly high percentage of the Chicago Region's population also lives that close to Midway. This concentration of population near the Chicago Region's airports indicates the air passenger's trip decision most likely is based on airline considerations rather than airport access issues. Decisions based on airline considerations would give O'Hare an advantage in those cases where immediate alternatives are required, particularly for time-sensitive travelers who, if they miss a flight, want the availability of other flights on other airlines as a backup. Midway has an advantage in serving the more price-sensitive segment of the market with its service by low-fare

airlines. For these reasons, business travelers are more likely to use O'Hare. O'Hare also offers a significantly greater choice of airlines; if a scheduled flight is missed or delayed, or when trips are extended, the more frequent flight options available at O'Hare result in a shorter overall trip duration. O'Hare's air service strength is shown in **Table V-2.**

Table V-2
Chicago Airport System Forecast
Domestic Air Service Choices at Chicago Region Airports

	O'Hare	Midway	Meigs
Scheduled Passenger Airlines(1)	17	14	1
Nonstop Domestic Scheduled Destinations(1)	126	42	1
1997 Domestic Commercial Aircraft Departures(2)	373,719	66,276	1,210

Sources:
(1) Official Airline Guide 1997
(2) Department of Aviation 1997 Records

Even when an air carrier provides service to a specific market from Midway, that market is predominantly served from O'Hare. For example, two carriers offer six flights from Fort Lauderdale, Florida to O'Hare, and one carrier offers two flights from Fort Lauderdale to Midway. This greater choice of service likely results in increased seats and fare availability at O'Hare; however, ever-increasing air service from Midway is changing this imbalance. The June 1997 Official Airline Guide shows 10 airports from which nonstop service to the Chicago Region is available only at Midway.

C. ALLOCATION OF DOMESTIC O&D DEMAND BETWEEN AIRPORTS

The starting point for estimating the future split of domestic O&D traffic between O'Hare and Midway was the regression analysis and 2012 domestic O&D projection for the Chicago Region, as discussed in Chapter IV. O'Hare's domestic O&D traffic was projected separately by regression analysis through 2012. The regression used the same PCPI and yield data as the regional projection, but restricted the independent variable to O'Hare's domestic per capita O&D enplanements.

The totals from the O'Hare domestic O&D regression forecast were subtracted from the Chicago Region domestic O&D regression forecast to give an initial volume for Midway. Then, the Midway domestic O&D forecast allocation was revised to give greater weight to changes in demand evident in recent years. At Midway, the demand in recent years has been spurred by both reductions in fares and additions of new markets. Yields at Midway are already below the national average because of the predominance of discount carrier activity. As with O'Hare, future demand will not be driven as much by the declining relative price of air travel (yield), which is forecast to average nine-tenths of 1 percent from 1997 to 2012, but by increased air service. When this revised balance was computed for Midway, it was subtracted from the Chicago Region's domestic O&D total to obtain the final apportionment for O'Hare.

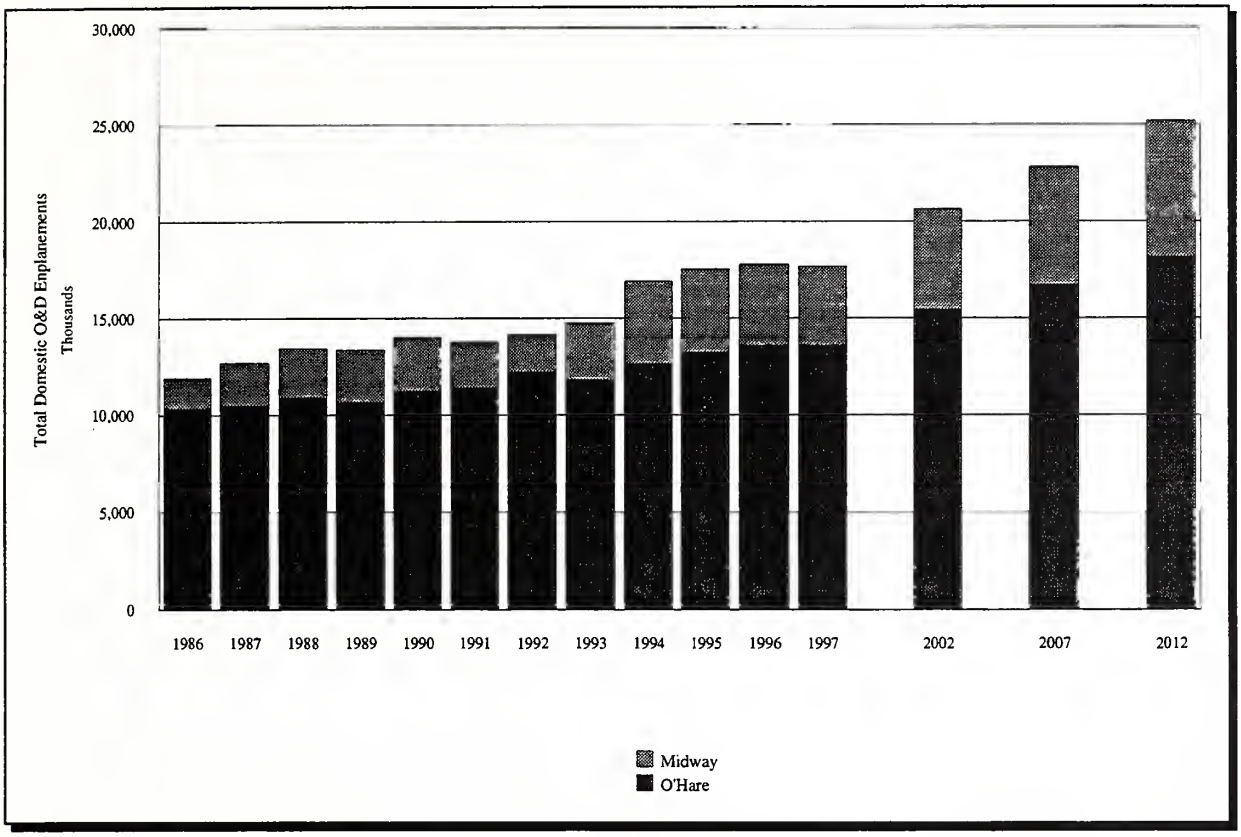
Meigs was assigned passenger traffic through 2001 based on historical levels and the anticipated airline schedule. Traffic at Meigs was not projected past 2001 because it is scheduled to close in early 2002.

The result of the allocation is that O'Hare's domestic O&D enplanement demand is expected to increase from 13.6 million in 1997 to 18.1 million in 2012. The Midway forecast indicates a growth from 4.1 million O&D enplanements in 1997 to 7.0 million in 2012. These increases represent a 3.7

percent annual average growth rate at Midway, compared to a 1.9 percent annual growth rate at O'Hare and a 2.4 percent annual growth rate for the Chicago Region. Although Midway's growth rate is 1.8 percent higher than O'Hare's by the end of the forecast period, O'Hare is projected to serve approximately twice as many domestic O&D passengers as Midway.

The distribution of domestic enplanements between O'Hare and Midway is shown in **Table V-3.**

Table V-3
Chicago Airport System Forecast
Distribution of O&D Passengers



	Domestic O&D Enplanements			Percentage of Total	
Year	O'Hare	Midway	Total	O'Hare	Midway
1986	10,346,627	1,579,061	11,925,688	86.8%	13.2%
1987	10,465,452	2,240,395	12,705,847	82.4%	17.6%
1988	10,901,835	2,544,830	13,446,665	81.1%	18.9%
1989	10,663,796	2,708,969	13,372,765	79.7%	20.3%
1990	11,233,026	2,774,245	14,007,271	80.2%	19.8%
1991	11,408,803	2,352,128	13,760,931	82.9%	17.1%
1992	12,215,102	1,919,128	14,134,230	86.4%	13.6%
1993	11,831,612	2,904,886	14,736,498	80.3%	19.7%
1994	12,645,407	4,275,374	16,920,781	74.7%	25.3%
1995	13,245,378	4,291,250	17,536,628	75.5%	24.5%
1996	13,575,872	4,199,655	17,775,527	76.4%	23.6%
1997	13,576,616	4,080,083	17,656,699	76.9%	23.1%
2002	15,423,000	5,217,000	20,640,000	74.7%	25.3%
2007	16,721,000	6,099,000	22,820,000	73.3%	26.7%
2012	18,131,000	7,049,000	25,180,000	72.0%	28.0%
	Average Annual Compound Growth Rates				
1986 - 1997	2.5%	9.0%	3.6%	-1.1%	5.2%
1997 - 2002	2.6%	5.0%	3.2%	-0.6%	1.8%
2002 - 2007	1.6%	3.2%	2.0%	-0.4%	1.1%
2007 - 2012	1.6%	2.9%	2.0%	-0.3%	0.9%
1997 - 2012	1.9%	3.7%	2.4%	-0.4%	1.3%

Sources: DOA Records, U.S. DOT Passenger Ticket Survey and Landrum & Brown, Inc.

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VI. DOMESTIC CONNECTING ENPLANEMENT FORECAST

In addition to the air passengers whose origin or destination is the Chicago Region, a large number of domestic passengers change aircraft at O'Hare and, to a lesser extent, at Midway. Domestic connecting passengers arrive at O'Hare or Midway solely to switch flights. In 1997, the number of connecting enplanements at O'Hare approached 17.4 million and was approximately 642,000 at Midway. With limited air service (one destination), Meigs traditionally has not had, nor is it forecast to have, connecting passengers.

All large airports have some connecting passenger activity. Several major metropolitan airports, like Charlotte, Dallas/Fort Worth, Atlanta, St. Louis and Denver, have become airline hubs at which domestic connecting activity accounts for more than 50 percent of the passenger activity. At O'Hare, domestic connecting enplanements in 1997 were 56.1 percent of total domestic enplanements. Midway is not considered a significant connecting airport; in 1997, such activity represented approximately 13.6 percent of total domestic enplanements.

Connecting passenger activity is comparatively high at O'Hare because of United's and American's hubbing operations. O'Hare often is described as a "natural" airline hub because of its Midwestern location and extensive domestic and international service. O'Hare's connecting activity has developed over many years and is self perpetuating; with the addition of new routes and carriers, additional air travelers are attracted to O'Hare.

The strength of connecting enplanement activity is derived from the local O&D demand. If that level of air service (i.e., frequency, number of departures) justifies hubbing operations by one or more airlines, those airlines will feed connecting passengers through their hubs, thereby establishing a level of connecting enplanements. The "critical mass" - the level of demand activity for initiating and maintaining air service, is established by the local O&D market, which is dependent on local demographic and economic factors.

The strength of the Chicago Region's O&D market led to American's and United's establishing connecting hubs at O'Hare. As a geographically central location, O'Hare serves significant levels of traffic flying between the coasts or flying from smaller midwestern cities to either coast. As certain transcontinental or midwestern to coast markets (i.e., Boston to Los Angeles) mature, the connecting flights that connect through O'Hare will be replaced with nonstop point-to-point flights. For this reason, the level of connecting passengers at O'Hare is forecast to decline relative to the percentage of O&D passengers during the forecast period.

Midway's connecting passenger activity has shown much more variation than O'Hare's. The growth and decline of Midway's connecting percentage between 1987 and 1993 are directly attributable to the entrance and failure of Midway Airlines, which, with its commuter affiliates, performed substantial connecting activity at Midway Airport. Midway now serves principally as an O&D airport without the banks of connecting flights typical of a domestic hub airport. Midway's airlines are generally focused on relatively short-haul, high-density markets to attract O&D passengers, whereas O'Hare's principal carriers schedule service to attract and serve connecting passengers.

A. DOMESTIC CONNECTING ENPLANEMENT FORECAST METHODOLOGY

1. O'Hare Connections

The connecting enplanement forecast methodology maintains the historical statistical relationship between the number of O&D enplanements and connecting enplanements. This relation is then applied to the O&D enplanement figures for the forecast period, which yields an initial projection. The methodology then factors in the increasing number of markets that can be expected to support nonstop O&D service at O'Hare. This provides the final projection, which is lower than the initial percentage of domestic connecting activity projections at O'Hare.

The number of domestic connecting passengers at O'Hare has increased from 13.9 million in 1986 to 17.4 million in 1997, which equals an average annual growth rate of 2.0 percent. However, within this period, there were seven years of increases and three years of decreases. The percentage of domestic connecting passengers has ranged from a high of 60.1 percent in 1989 to a low of 55.2 percent in 1995. The overall trend during the period shows a modest decline in O'Hare's connecting passenger percentage. **See Table VI-1.** Throughout the forecast period, total enplanements increase, while the percentage of connecting enplanements decreases.

To forecast domestic connecting enplanements at O'Hare, the historical average annual growth rate from 1991 to 1995 of 1.0 percent was used as a base. This base forecast was then adjusted to maintain the percentage relationship between domestic O&D and connecting enplanements. This results in an anticipated 0.8 percent average annual increase in volume of connecting passengers between 1997 and 2012 and an 0.5 percent average annual decrease in the connecting percentage for the same period. This methodology of forecasting O'Hare's domestic connecting enplanements maintains the balance between growth of total connecting enplanements and decline in the percentage of connecting enplanements. By the end of the forecast period in 2012, the connecting percentage is forecast to be 51.8 percent of total domestic enplanements.

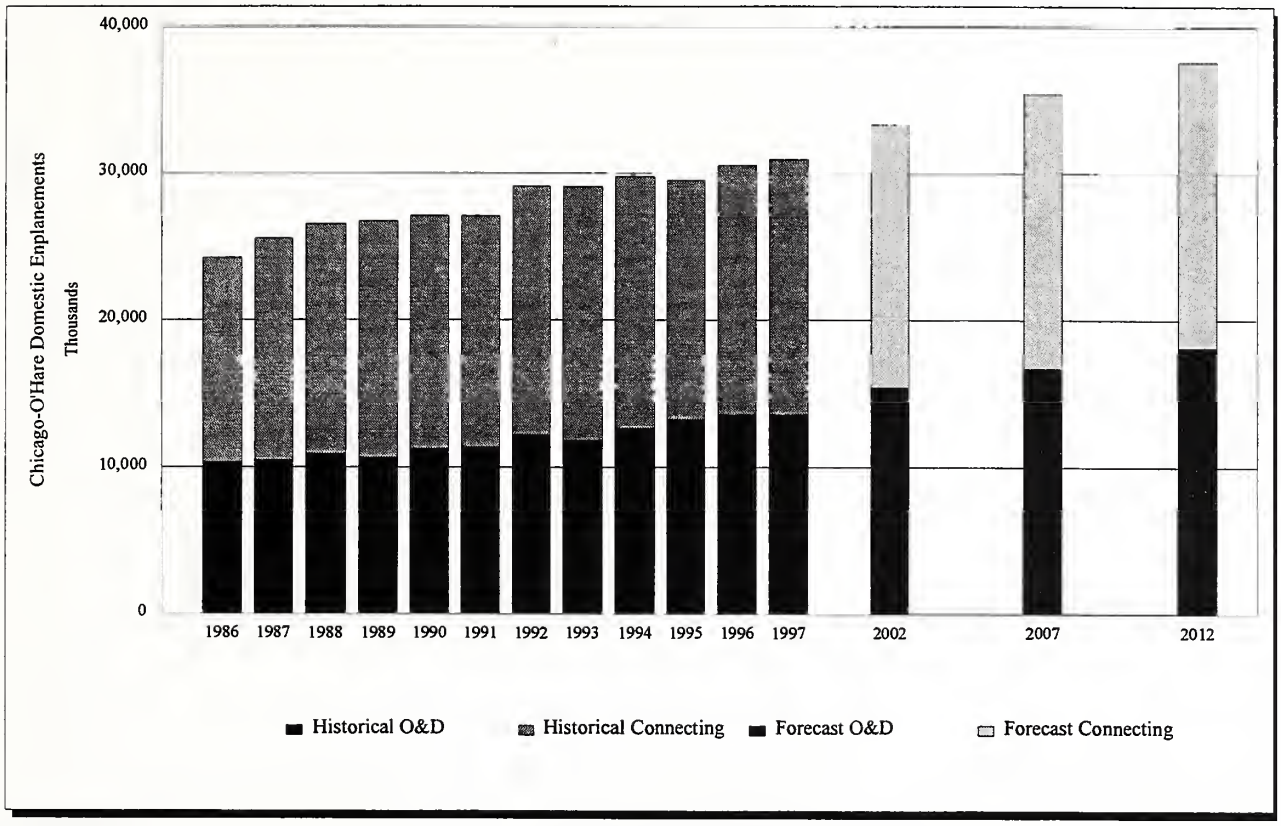
The growth of O'Hare's connecting passengers reflects its offering of best air service in the United States. This distinction is measured by the number of domestic destinations served, the number of daily departures, the number and strength of carriers, accessible Midwestern location, current airline facilities and connections to international carriers. These factors also contribute to Chicago's being a popular stopover for international passengers.

2. Midway Connections

The percentage of connecting enplanements to total domestic enplanements at Midway has varied widely over the past 10 years. Midway's percentage of connecting enplanements has ranged from 4.2 percent of domestic enplanements in 1994 to 32.9 percent in 1990. After factoring out these years of growth and decline associated with Midway Airlines, connecting enplanements saw an average annual growth rate of 4.9 percent. **See Table VI-2.**

In recent years, Southwest Airlines has replaced the aggregate volume of enplanements previously provided by Midway Airlines. Southwest Airlines is the principal air carrier at Midway, serving primarily O&D demand. As scheduled service by Southwest and other

Table VI-1
Chicago Airport System Forecast
Chicago-O'Hare International Airport Connecting Enplanements



	Chicago- O'Hare Domestic Enplanements				
				Percentage of Total	
Year	O&D	Connecting	Total	O&D	Connecting
1986	10,346,627	13,913,628	24,260,255	42.6%	57.4%
1987	10,465,452	15,084,594	25,550,046	41.0%	59.0%
1988	10,901,835	15,644,082	26,545,917	41.1%	58.9%
1989	10,663,796	16,068,093	26,731,889	39.9%	60.1%
1990	11,233,026	15,868,352	27,101,378	41.4%	58.6%
1991	11,408,803	15,690,011	27,098,814	42.1%	57.9%
1992	12,215,102	16,906,557	29,121,659	41.9%	58.1%
1993	11,831,612	17,273,411	29,105,023	40.7%	59.3%
1994	12,645,407	17,135,825	29,781,232	42.5%	57.5%
1995	13,245,378	16,311,702	29,557,080	44.8%	55.2%
1996	13,575,872	16,962,812	30,538,684	44.5%	55.5%
1997	13,576,616	17,368,938	30,945,554	43.9%	56.1%
2002	15,423,000	17,871,000	33,294,000	46.3%	53.7%
2007	16,721,000	18,677,000	35,398,000	47.2%	52.8%
2012	18,131,000	19,489,000	37,620,000	48.2%	51.8%
	Average Annual Compound Growth Rates				
1986 - 1997	2.5%	2.0%	2.2%	0.3%	-0.2%
1997 - 2002	2.6%	0.6%	1.5%	1.1%	-0.9%
2002 - 2007	1.6%	0.9%	1.2%	0.4%	-0.3%
2007 - 2012	1.6%	0.9%	1.2%	0.4%	-0.4%
1997 - 2012	1.9%	0.8%	1.3%	0.6%	-0.5%

Sources: DOA Records, U.S. DOT Passenger Ticket Survey and Landrum & Brown, Inc.
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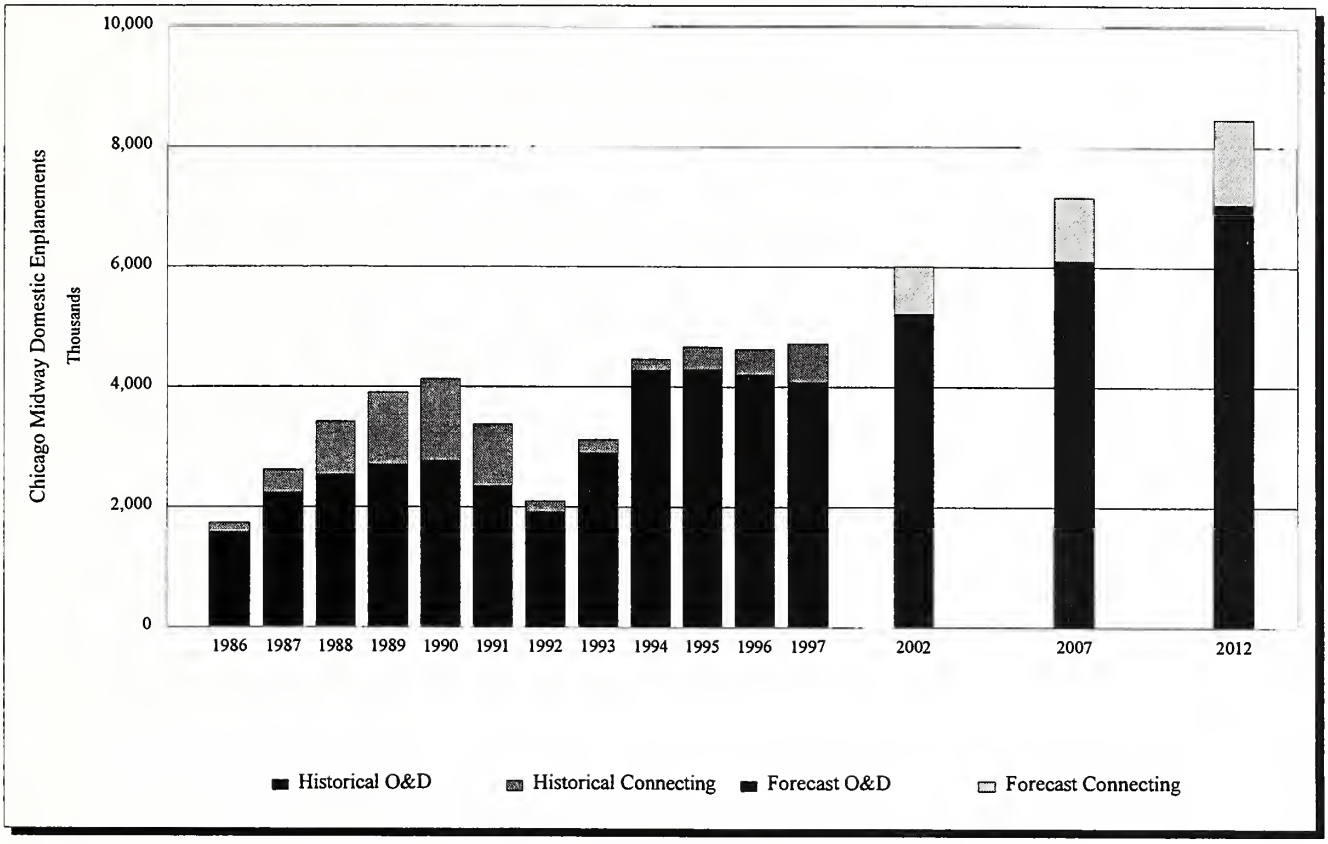
Table VI-2
Chicago Airport System Forecast
Chicago Midway Airport Connecting Enplanements



	Chicago Midway Domestic Enplanements				
				Percentage of Total	
Year	O&D	Connecting	Total	O&D	Connecting
1986	1,579,061	158,444	1,737,505	90.9%	9.1%
1987	2,240,395	382,637	2,623,032	85.4%	14.6%
1988	2,544,830	883,871	3,428,701	74.2%	25.8%
1989	2,708,969	1,198,789	3,907,758	69.3%	30.7%
1990	2,774,245	1,360,564	4,134,809	67.1%	32.9%
1991	2,352,128	1,035,017	3,387,145	69.4%	30.6%
1992	1,919,128	180,508	2,099,636	91.4%	8.6%
1993	2,904,886	225,528	3,130,414	92.8%	7.2%
1994	4,275,374	186,378	4,461,752	95.8%	4.2%
1995	4,291,250	375,134	4,666,384	92.0%	8.0%
1996	4,199,655	426,935	4,626,590	90.8%	9.2%
1997	4,080,083	641,558	4,721,641	86.4%	13.6%
2002	5,217,000	795,000	6,012,000	86.8%	13.2%
2007	6,099,000	1,071,000	7,170,000	85.1%	14.9%
2012	7,049,000	1,414,000	8,463,000	83.3%	16.7%
	Average Annual Compound Growth Rates				
1986 - 1997	9.0%	13.6%	9.5%	-0.5%	3.7%
1997 - 2002	5.0%	4.4%	5.0%	0.1%	-0.5%
2002 - 2007	3.2%	6.1%	3.6%	-0.4%	2.5%
2007 - 2012	2.9%	5.7%	3.4%	-0.4%	2.3%
1997 - 2012	3.7%	5.4%	4.0%	-0.2%	1.4%

Sources: DOA Records, U.S. DOT Passenger Ticket Survey and Landrum & Brown, Inc.
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carriers increases, the opportunities for connections increase. Therefore, the level of connecting passengers at Midway is expected to increase slightly in relation to total domestic passengers.

By 2012, total Midway domestic enplanements are anticipated to be 8.5 million, of which 1.4 million will be domestic connecting enplanements, a connecting percentage of 16.7 percent.

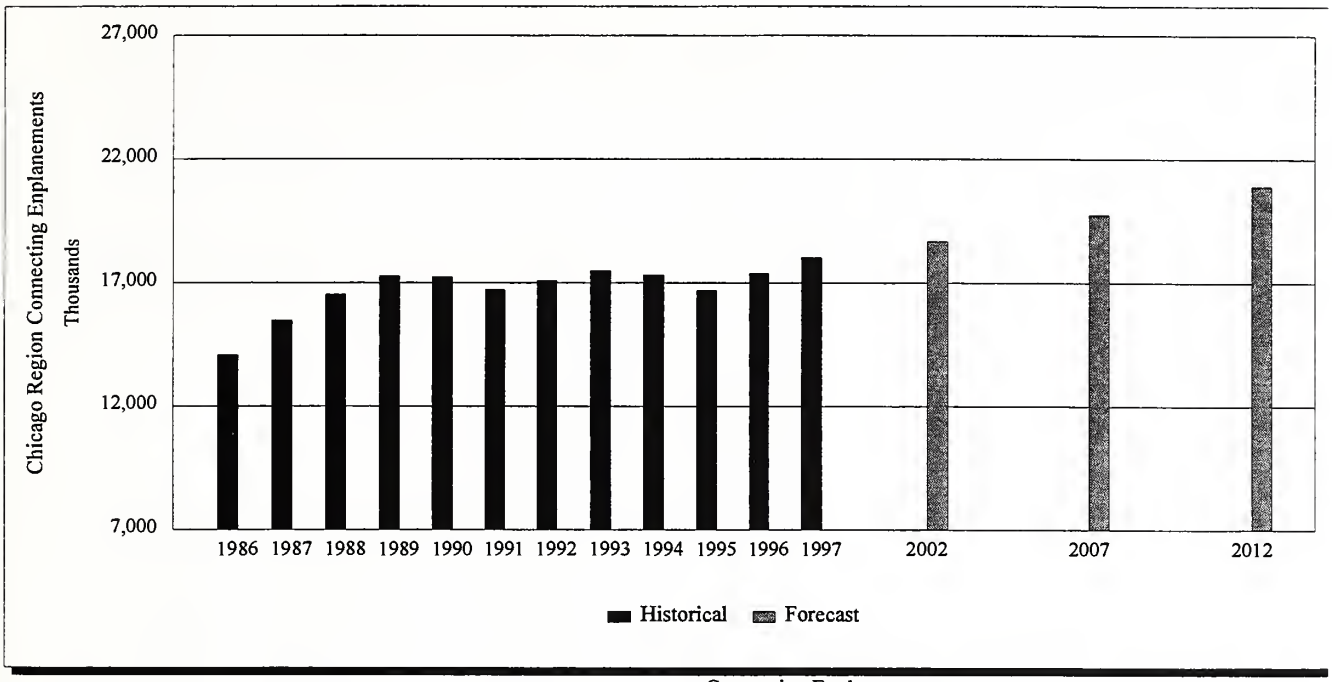
B. DOMESTIC CONNECTING ENPLANEMENT FORECAST SUMMARY

O'Hare, because of its extensive domestic air service, will maintain a predominant share of connecting enplanements at or exceeding 93.7 percent of the Chicago Region's total throughout the forecast period. Regional connecting enplanementing passengers are expected to grow at average annual rates of 0.2 percent through 2002 (when Meigs closes) and 1.1 percent from 2002 to 2012, averaging 0.8 percent annually throughout the forecast period.

This growth reflects the increasing connecting activity at Midway and the declining percentage of connecting activity at O'Hare. For Midway, growth in connecting activity is a corollary to the strong O&D traffic base at that airport. For O'Hare, future growth in O&D traffic is expected to take precedence over growth in connecting activity.

Regional connecting enplanements are shown in **Table VI-3**.

Table VI-3
Chicago Airport System Forecast
Connecting Enplanements



	Connecting Enplanements				
				Percentage of Total	
Year	O'Hare	Midway	Total	O'Hare	Midway
1986	13,913,628	158,444	14,072,072	98.9%	1.1%
1987	15,084,594	382,637	15,467,231	97.5%	2.5%
1988	15,644,082	883,871	16,527,953	94.7%	5.3%
1989	16,068,093	1,198,789	17,266,882	93.1%	6.9%
1990	15,868,352	1,360,564	17,228,916	92.1%	7.9%
1991	15,690,011	1,035,017	16,725,028	93.8%	6.2%
1992	16,906,557	180,508	17,087,065	98.9%	1.1%
1993	17,273,411	225,528	17,498,939	98.7%	1.3%
1994	17,135,825	186,378	17,322,203	98.9%	1.1%
1995	16,311,702	375,134	16,686,836	97.8%	2.2%
1996	16,962,812	426,935	17,389,747	97.5%	2.5%
1997	17,368,938	641,558	18,010,496	96.4%	3.6%
2002	17,871,000	795,000	18,666,000	95.7%	4.3%
2007	18,677,000	1,071,000	19,748,000	94.6%	5.4%
2012	19,489,000	1,414,000	20,903,000	93.2%	6.8%
	Average Annual Compound Growth Rates				
1986 - 1997	2.0%	13.6%	2.3%		
1997 - 2002	0.6%	4.4%	0.7%		
2002 - 2007	0.9%	6.1%	1.1%		
2007 - 2012	0.9%	5.7%	1.1%		
1997 - 2012	0.8%	5.4%	1.0%		

Sources: DOA Records, U.S. DOT Passenger Ticket Survey and Landrum & Brown, Inc.

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VII. INTERNATIONAL ENPLANEMENT FORECAST

International service is the fastest growing segment of the U.S. commercial airline industry. While the U.S. domestic passenger market has shown some signs of maturity, the international market is often viewed as being in its infancy. Over the past 10 years, the Chicago Region's domestic O&D enplanements have increased 3.5 percent per annum, and international enplanements have increased 8.6 percent per annum.

International activity for the Chicago Region has been almost exclusively at O'Hare. As shown in **Table VII-1**, in only one year in the past 10 has Midway contributed more than 1.0 percent to the Chicago Region's total international enplanements.

Table VII-1
Chicago Airport System Forecast
Total International Enplanements

Year	O'Hare	Percent of Total	Midway	Percent of Total	Total Region
1986	1,700,273	100.0%	0	0.0%	1,700,273
1987	1,961,284	100.0%	0	0.0%	1,961,284
1988	2,013,749	100.0%	811	0.0%	2,014,560
1989	2,142,598	98.5%	33,051	1.5%	2,175,649
1990	2,292,371	99.0%	23,005	1.0%	2,315,376
1991	2,267,392	100.0%	0	0.0%	2,267,392
1992	2,535,389	100.0%	0	0.0%	2,535,389
1993	2,889,727	100.0%	0	0.0%	2,889,727
1994	3,040,777	99.8%	6,018	0.2%	3,046,795
1995	3,298,380	99.6%	12,959	0.4%	3,311,339
1996	3,529,201	99.9%	4,696	0.1%	3,533,897
1997	3,892,529	100.0%	1,481	0.0%	3,894,010

Source: Chicago Department of Aviation Management Records

In terms of total U.S. international air service, three coastal U.S. airports have historically served as the prime international gateways--New York's JFK International, Miami International and Los Angeles International. O'Hare, the world's busiest airport in terms of total passengers, is ranked fourth in international traffic, serving about one-half of the international traffic of the top three. While the levels of international passengers in the Chicago Region are not expected to approach the levels of these other gateways during the forecast period, the percentage growth and growth in total international enplanements will be significant.

This forecast begins with a review of the key factors affecting international passenger demand and how they are relative to the Chicago Region. The Chicago Region's international passenger activity is then reviewed, which establishes the framework for discussing the forecast methodology and international forecast passenger forecast that follows. The final section reviews the plans that airport owners and operators have underway to handle the anticipated continued rapid growth of international passenger traffic.

A. FACTORS AFFECTING INTERNATIONAL DEMAND

International air service is based upon a number of different factors, each of which contributes to the desirability of that type airline service at one airport rather than at another. Airports that have

established dominant international positions are further strengthened by the synergies with domestic passenger and cargo service.

The combined strength of the Chicago Region's economy and these critical international service factors suggest that O'Hare and, to a much smaller extent, Midway, will continue to deliver increase levels of international service. The international airlines that have established stations with personnel and facilities at O'Hare further strengthen the Chicago Region's position in the international market.

1. Local Market Strength

A key to international air service is the catchment area, or the ability of the region around the airport to provide strong local passenger demand. The Chicago Region has the necessary resident base to provide significant international O&D activity. The Chicago Region is a world center of industry and commerce and a major supplier of export goods and services. This serves to increase the propensity of its residents to fly and, with its growth as an international business center, an increasing propensity to take international air trips.

2. Bilateral Agreement Rights

Air service between countries is established under bilateral treaties. These treaties have been difficult to change, particularly in Asian markets where foreign governments protect their flag airlines from competition or have limited airport capacity to meet new demands. Chicago has established itself as a major world air market and is specifically named in many treaties to receive air service. The latest U.S. government initiative is to create "open skies," which permit any air carrier to serve any international city-pair. The new competition has benefited markets that already have "open skies," especially mega-markets like Chicago.

3. Geographic Location

Today's longer-range aircraft and more direct air routes mean that location alone is not sufficient to attract international air service. New York, Los Angeles and Miami still are favorably positioned for international routes as they have the geographical advantage of being closer to destination cities in Europe and Asia/Pacific. This advantage helped these cities gain much of their international air service.

Chicago now has a unique geographic advantage. With the opening of Russian airspace, the polar route from Chicago to Pacific Rim markets is only slightly longer than the great circle routes from the West Coast. The great circle distances in nautical miles from Chicago to the rest of the world are shown in **Exhibit VII-1.**

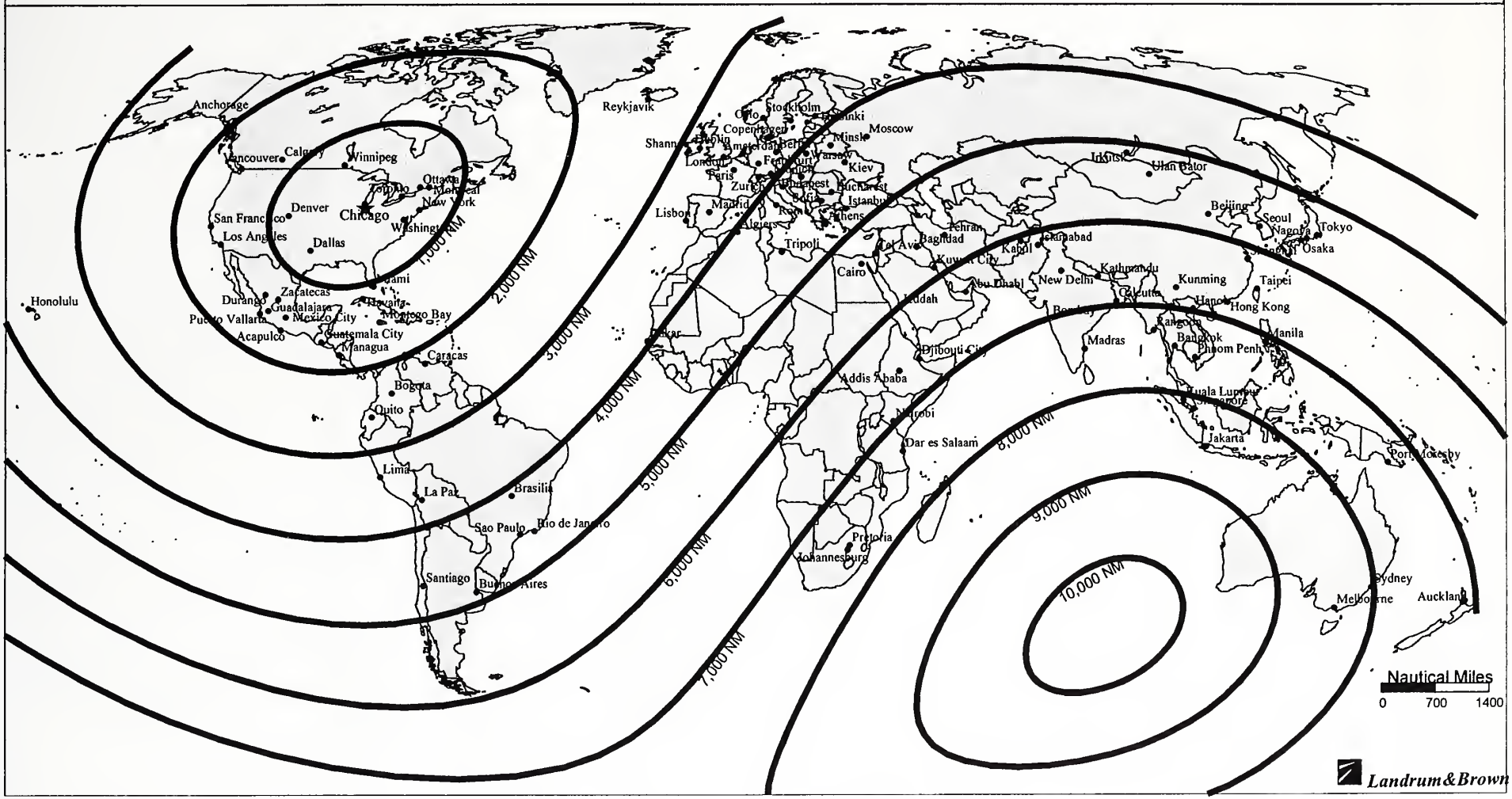
4. Ongoing Domestic Air Service Connections

Because so few U.S. airports have sufficient local demand to support international air service, most international passengers must use domestic service and connect through gateway airports. Such airports as O'Hare with high frequency service in many domestic markets have developed into hubs that feed passengers to and from international flights. To

Exhibit VII-1

Chicago Airport System Forecast

Nautical Miles from Chicago to Major World Cities



a lesser extent, major international airports are located where passengers can connect between international flights.

B. CURRENT INTERNATIONAL SERVICE

As previously stated, international air service in the United States historically has been concentrated at three gateways:

- JFK International Airport – Europe
- Miami International Airport – Latin America
- Los Angeles International Airport – Pacific Rim

Honolulu and San Francisco have traditionally shared Los Angeles's role as gateways to the Pacific Rim, with Seattle and Anchorage having limited air service. These West Coast airports developed as gateways partly as extension of their historical roles as ports for overseas shipping. This historical position created social, political and economic ties between these U.S. cities and international destinations. With aircraft range limited to providing nonstop service to many destinations from mid-continent locations, until recently, these coastal cities maintained this location advantage for overseas air travel.

The Chicago Region is attractive to international air service. Like the traditional port cities, Chicago has the transportation and financial infrastructure necessary for a national and international center of commerce. The Chicago Region's service to many international markets is strengthened by a strong domestic connecting market. O'Hare's hubbing operations increase international enplanements through domestic feed to and from international flights.

The Chicago Region had 3.9 million international enplanements in 1997. Atlantic destinations (Europe, Middle East and Africa) accounted for 2.0 million international enplanements (50.6 percent), followed by Canada with 1.1 million (27.7 percent), Latin America (Central America, Mexico, the Caribbean and South America) with 493,331 (12.4 percent) and the Far East with 332,034 (9.3 percent).

Total international enplanements at O'Hare from 1986 to 1997 grew at a 7.8 percent average annual rate. Atlantic routes recorded the highest average annual rate of growth, 10.4 percent, followed by South American routes at 55.0 percent, Far Eastern routes at 8.3 percent, Middle Eastern routes at 7.5 percent, Canadian routes at 5.2 percent and Central American routes at 3.6 percent. The growth and share of O'Hare international enplanements are shown in **Table VII-2.**

As the figures in the table illustrate, international gateway traffic through the Chicago Region to the South American, Caribbean, Middle Eastern and African regions has been small, relative to the principal routes to Europe, Canada and the Far East. Miami and other U.S. gateways were used to reach these regions.

Table VII-2
Chicago Airport System Forecast
O'Hare International Enplanement Growth by Region

World Region	1986	1997	Average Annual Growth
Europe	654,482	1,940,520	10.4%
Canada	591,456	1,103,839	5.8%
Central America/Mexico	246,066	434,253	5.3%
Far East	137,798	332,034	8.3%
Caribbean	59,620	46,552	-2.2%
Middle East	10,287	22,805	7.5%
South America	101	12,526	55.0%
Africa	463	0	-100.0%
TOTAL	1,700,273	3,892,529	4.6%

Source: INS data.
Note: This table shows only passengers from Chicago to each world region who were processed through immigration; additional passengers went to/from these regions and Chicago via other gateways.

C. INTERNATIONAL ENPLANEMENT FORECAST METHODOLOGY

Given that much of the international demand is generated by factors other than the strength of the Chicago Region market, the international forecasting approach required a more global perspective than that used in the domestic O&D passenger forecast. Regression analysis models and trend analysis methods were applied to test the validity and range of possible forecasts. Each world region was evaluated separately, as travel to and from each region has its own unique set of circumstances.

The Boeing Commercial Airplane Group's annual forecast of Revenue Passenger Miles (RPMs) for both domestic and international air travel by world region is the basis of this analysis because it provides the most comprehensive review of the key factors affecting world air travel demand. Boeing's analysis also closely matches the forecast horizon. Boeing's "1997 Current Market Outlook" covers the period 1997 through 2016. In addition to North America (the United States and Canada), Boeing identifies world traffic demand for five regions: Europe, Asia, Middle East, Africa and Latin America.

The Chicago Region's international passenger demand to each world region was identified using data from Immigration and Naturalization Services (INS), which records the number of international air passengers by U.S. port of entry or exit to various world regions. The INS identifies nine world regions: Central America/Mexico, Caribbean, South America, Europe, Middle East, Africa, Far East, Oceania and Canada. To correspond with the Boeing world regions, the INS passenger counts were re-categorized and subtotaled in the following manner: Central America/Mexico, Caribbean and South America were joined into a Latin America region and Asia and Oceania were combined to create an Asia/Pacific region.

Although Boeing and the INS both identify data for Middle East and Africa regions, the North American, United States and Chicago Region travel to these regions is too small to make a regression analysis meaningful. Consequently, the Middle East and Africa regions were combined with the Europe region to create an Atlantic region. The Boeing forecast of North American international travel by world region is presented in **Table VII-3.**

Table VII-3
Chicago Airport System Forecast
Boeing Forecast of North American International
Travel by World Region
(In Millions of RPM)

Year	Latin America	Atlantic	Pacific	Total
1985	31,422	98,574	46	130,042
1990	46,689	143,378	89	190,156
1994	56,381	167,195	110	223,686
1995	60,490	173,343	120	233,953
1996	62,914	183,744	127	246,785
2001	81,288	228,239	173	309,700
2006	104,744	280,236	235	385,215
2011	129,759	332,921	307	462,987
2016	155,022	379,502	382	534,907
Average Annual Growth Rates				
1985-1996	6.5%	5.8%	9.7%	6.0%
1996-2001	5.3%	4.4%	6.5%	4.6%
2001-2011	4.8%	3.8%	5.9%	4.1%
1996-2011	4.9%	4.0%	6.1%	4.3%

Source: Boeing Company 1997 Current Market Forecast (March, 1997)
Note: Latin America includes the Caribbean and Central and South America
Atlantic includes Europe, Middle East, and Africa
Pacific includes China and Hong Kong, Northeast and Southeast Asia, and Oceania

The Boeing world region forecast is prepared on the basis of millions of RPMs. A revenue passenger mile is defined as the cost of transporting one paying passenger one mile. Although the distance flown (or stage length) between major cities in different world regions remains constant, the volume of passengers changes over time. For this analysis, it is assumed that the current relationship between RPMs and international passenger demand between the U.S. and each world region (i.e., U.S. to Latin America) will remain relatively constant; therefore, the growth rate projected for RPMs by Boeing can be used to forecast international passengers for the respective world regions.

1. Non-Canadian International Enplanement Forecast

The regression analysis of historical O'Hare international enplanements by world region against the Boeing North American international RPMs by world region resulted in a projection of O'Hare international passenger demand, excluding Canada, of 6 million enplanements in 2012. The international enplanement forecast is summarized in **Table VII-4.**

Table VII-4
Chicago Airport System Forecast
International Forecast by World Region

	Year	Latin American	Atlantic	Pacific	Total Non-Canadian
Actual	1986	305,787	665,232	137,798	1,108,817
	1987	317,172	777,384	131,761	1,226,317
	1988	328,779	814,572	138,350	1,281,701
	1989	275,167	937,181	141,887	1,354,235
	1990	344,851	1,086,382	144,577	1,575,810
	1991	389,309	1,028,960	149,993	1,568,261
	1992	323,674	1,283,824	210,113	1,817,611
	1993	374,059	1,394,712	261,260	2,030,030
	1994	404,830	1,484,263	303,001	2,192,094
	1995	421,341	1,656,821	296,616	2,374,778
	1996	435,922	1,785,392	330,173	2,551,487
	1997	493,331	1,940,520	332,034	2,788,690
Forecast	2002	493,331	2,499,000	508,000	3,595,000
	2007	730,000	3,240,000	719,000	4,689,000
	2012	894,000	4,093,000	977,000	5,964,000
		Average Annual Growth Rates			
	1986 - 1997	3.6%	10.4%	9.1%	8.7%
	1991 - 1997	2.3%	11.7%	17.1%	10.2%
	1997 - 2002	3.6%	4.9%	8.9%	5.2%
	2002 - 2007	4.4%	5.3%	7.2%	5.5%
	2007 - 2012	4.1%	4.8%	6.3%	4.9%
	1997 - 2012	4.0%	5.0%	7.5%	5.2%

Sources: U.S. International Air Travel Statistics, Table III d (INS)
Department of Aviation Management Records
Landrum & Brown, Inc.

Notes: 1) Sum of Europe, Africa and Middle East
2) Latin America = Central America/Mexico, Caribbean and South America
3) Asia Pacific = Far East and Oceania
4) Sum of Atlantic, Latin American and Asia/Pacific, excluding Canada.

The regression analysis forecasts increases for all international regions. O'Hare international traffic to and from Latin America will grow from 493,000 total enplanements in 1997 to 894,000 in 2012. For the Atlantic Region, the regression predicts traffic growing from 1.9 million in 1997 to 4.1 million in 2012. Finally, the O'Hare-Asia markets are projected to grow from 332,034 enplanements in 1997 to 977,000 in 2012. In total, the forecast of O'Hare traffic to world regions (excluding Canada) shows an increase from 2.8 million in 1997 to 6.0 million in 2012, a 5.2 percent average annual increase.

The regression statistics by world region are summarized in **Table VII-5.**

Table VII-5
Chicago Airport System Forecast
Non-Canadian International Enplanement Forecast Matrix

World Region	Method	Independent Variables Regression Statistics
Latin America	Regression	Boeing Latin America RPMs $R^2 = .8267$
Atlantic	Regression	Boeing Atlantic RPMs $R^2 = .9678$
Pacific	Regression	Boeing Asia RPMs $R^2 = .8551$
Canada	Trend	Time Series $R^2 = .7780$

2. Canadian Enplanement Forecast

O'Hare has been the largest U.S. airport in terms of passenger volume to Canada. Canadian air passenger traffic at O'Hare has grown consistently in recent years, with the annual growth rate at 5.2 percent from 1986 to 1997. U.S.-Canadian air service has expanded in both total passengers and the number of cities served. Many of the routes between the United States and Canada under the regulated environment were through Chicago. In the past few years, these Canadian routes have been deregulated and, after 1998, a complete "open skies" policy will be in place.

The preferred method of projecting Canadian traffic to and from O'Hare is a regression analysis of historical air traffic between the Chicago Region and Canada; this analysis used the 1986-1997 period as the base. Time series regression analysis was utilized to produce a "best fit" trend line projection based on the historical data from 1986 to 1997. Time series regression assumes that long-term trends are predictable based solely on past activity levels and the assumption that variations around that trend are temporary, self-correcting deviations. The deregulation of the U.S.-Canadian air market in 1995 brought a slight increase in the growth rate from 1995 to 1996, but not enough to distort the use of historical records of O'Hare-Canadian enplanements as the base for projecting such air traffic in the future.

The regression equations based upon projection of historical traffic growth resulted in a high confidence interval of expected growth without depending upon growth of connecting passenger traffic. This regression shows that O'Hare-Canada enplanements will grow from 1.1 million in 1997 to 1.5 million in 2012. The results of this regression and average annual growth rates are shown in **Table VII-6.**

Table VII-6
Chicago Airport System Forecast
O'Hare-Canadian Enplanements Forecast

	Year	Enplanements
Actual	1986	591,456
	1987	734,967
	1988	732,048
	1989	788,363
	1990	716,561
	1991	699,131
	1992	717,778
	1993	859,697
	1994	848,683
	1995	923,602
	1996	977,714
	1997	1,103,839
Forecast	2002	1,172,000
	2007	1,345,000
	2012	1,518,000

Average Annual Growth Rates

Time Period	Growth Rate
1986 - 1997	5.2%
1991 - 1997	6.9%
1997 - 2002	1.2%
2002 - 2007	2.8%
2007 - 2012	2.4%
1997 - 2012	2.1%

Sources: International Passenger Statistics, INS
Landrum & Brown, Inc.

The forecast anticipates O'Hare's role in U.S.-Canadian air service to slightly diminish in the years ahead as other cities and hubs attract U.S.-Canadian air service. Therefore, the 2.1 percent growth rate over the 1997-2012 period may be slightly less than the overall U.S.-Canadian market increase.

D. INTERNATIONAL ENPLANEMENT FORECAST SUMMARY AND COMPARISON

This international forecast assumes that O'Hare will remain the predominant airport for international air service in the Chicago Region. International enplanements at Midway and Meigs accounted for less than 1 percent of historical volumes. Midway provides only limited vacation charters to the Caribbean and Mexico. International activity at Midway peaked in 1989-1990 with between 23,000 and 33,000 enplanements. A return to that level of activity is not foreseen within the forecast period. International air service to certain markets in the Caribbean, Mexico and possibly Canada may develop at Midway during the forecast period.

1. International Enplanement Summary

The total international enplanement forecast for the Chicago Region shows international enplanements increasing from 3.9 million in 1997 to 7.5 million in 2012. This is an average annual growth rate of 4.5 percent. Non-Canadian international enplanements will increase to 6.0 million by 2012, and Canadian enplanements are anticipated to total 1.6 million in 2012. The growth rate for forecast total international enplanements averages 4.5 percent for the period 1997 through 2012; this compares to a 2.0 percent average annual growth rate projected for domestic O&D enplanements over the same period.

2. International Forecasts and Airport Development

The major aircraft manufacturers forecast world air travel to grow. **Table VII-7** indicates the aircraft manufacturers' latest traffic estimates, which include both domestic and intra-world region air passenger activity.

Table VII-7
Chicago Airport System Forecast
World Air Traffic Forecasts by Aircraft Manufacturers

Manufacturer	Forecast Period	Annual World Growth
Boeing	1997 - 2016	5.9%
Airbus	1997 - 2016	5.2%
McDonnell Douglas	1996 - 2015	6.0%

Sources: Boeing Current Market Outlook, 1997;
Airbus Global Market Forecast, 1997
McDonnell Douglas Outlook for Commercial Aircraft, 1996.

The aircraft manufacturers' forecasts are for large aircraft travel on a worldwide basis, but they show a general consistency of over five percent average annual total passenger activity growth expected in the next 20 years. If only the international (inter-country) portion of this activity were broken out, the average annual growth rates would be much higher.

This section presents the plans of major international and domestic airports to prepare for increased international demand. As much as manufacturing orders or housing starts help forecast the U.S. domestic economy, the efforts of these airports to build for anticipated demand is another indication of the perceived strength and anticipated growth of international air service.

The key to Pacific Rim air travel is Japan, which dominates the economies of the western Pacific. Two major Japanese airport improvement projects are underway that demonstrate the expected growth and strain on current airports. Narita, the international airport serving Tokyo and the most important transfer point in the western Pacific, has just completed a 28-year negotiation to construct a second runway. A massive terminal development program is underway, but protests have delayed both projects. The next phase of the Narita projects is to be completed by 2002 and is estimated to cost $1.5 billion.

The other development project in Japan is the new airport in Osaka Bay. This $15 billion airport opened late in 1995 with the highest airline fees and charges in the world.

Construction is already underway on Phase Two, which includes a second runway and terminal expansion. Work began on the Kansai Airport in 1987, which created a 1,260-acre island for the airport. The Japanese government has a five-year plan for $37.6 billion in airport-related expenditures. Expansions and improvement to all major Japanese airports were part of the plan.

The largest international passenger airport on the Asian Mainland is Hong Kong's Kai Tak, which is surrounded by urban areas and the sea, making expansion impossible. The new Chek Lap Kok airport is being built several miles away by leveling a small island and filling in part of the sea. It is scheduled to open in 1998. Total cost of this new airport is estimated at $21 billion.

Macao, a Portuguese colony across the river delta from Hong Kong, opened its first airport in 1996 at a cost of $805 million. China opened the $582 million Zhuhai Airport in 1997, only 18 miles from the Macao airport. Zhuhai Airport will compete with airports in Hong Kong, Macao and Guangyhou (formerly Canton) for air traffic out of southern China. Guangyhou completed a $695 million airport improvement project in 1996. Shanghai is planning a $2.8 billion airport, and Beijing has begun a $500 million airport improvement project. The Chinese airport development is stimulated by the reported 21.0 percent average annual growth in internal Chinese air travel in the 25-year period ending in 1990. Continued, double-digit growth in local, tourist and cargo air traffic is forecast.

Other major Asian airport developments include:

- Korea - A $10 billion replacement for Seoul's airport is scheduled for completion by 1998. Like several other airports in the region, the airport is being built on reclaimed land.

- Malaysia - The capital city, Kuala Lumpur, has a new airport under construction that will cost $7.5 billion and will be completed in 1998.

- Thailand - Thailand's capital and largest city has a $3.2 billion plan to build a new airport. Completion is now estimated for the year 2002 after several starts and stops caused by economic issues.

Almost all other Asian airports have major capital development projects in the planning or construction phases, including Kobe, Japan, $2.8 billion; Taipei, Taiwan, $700 million; Ho Chi Minh City, Vietnam, $558 million; and Manila, Philippines, $585 million.

Outside Asia, other international airports also are undergoing major developments. European airports with major projects include Frankfurt, Germany's recently completed $1.1 billion Terminal 2, London's proposed $2.1 billion Terminal 5 at Heathrow; and the proposed $3 billion upgrade at Rome's Leonardo de Vinci Airport. In Australia, the airport in Sydney is undergoing a $200 million in new developments.

3. U.S. Airport Development

U.S. airports also are expanding to address the expected growth of air travel to Asia-Pacific and other international and domestic destinations.

Denver International Airport, which opened in February 1995, is the newest commercial airport in the United States. Prior to that, Dallas/Ft. Worth International, which opened in 1974, was the newest U.S. airport. Denver's advantages includes its five all-weather runways and its capability to build out to 12 runways. The number, location, length and instrumentation of these runways give Denver International more potential aircraft operational capacity than any other airport in the world.

San Francisco International has planned $1.9 billion in improvements, the centerpiece of which will be a new international terminal. The facility will have over 2 million square feet of space and 26 new gates, 20 of which will be able to handle 747-400s. The new terminal will be capable of handling 12 simultaneous international arrivals, compared to the current four. Other improvements at San Francisco International are new cargo terminals, airport maintenance facilities, parking lots and the extension of the Bay Area Rapid Transit system to the airport.

Seattle-Tacoma International is the third-largest Pacific Coast airport for international service after Los Angeles International and San Francisco International. Seattle is finalizing plans for a critically needed new runway, the cost of which is estimated to exceed $500 million.

Portland International is also a player in the international air service competition, as Delta Air Lines provides international service at Portland. Portland recently completed a $100 million terminal development project on the north side of the terminal and has started a new $250 million expansion on the south side of the terminal.

Miami has an airport expansion program in progress with a new terminal and new runway. During a five-year, $760 million expansion project, Orlando will build a fourth terminal. In Austin, Texas, a former military base is being converted to a commercial airport a cost that is expected to reach $500 million. Nashville, Cincinnati and Atlanta recently completed new international facilities.

JFK International has a number of ongoing projects to help it regain its status as the preeminent international gateway to the United States. Four foreign carriers are building their own terminal at JFK, and the Port Authority of New York & New Jersey, which manages JFK, has a private firm investing nearly $1 billion in the International Arrivals Building. The total JFK Redevelopment Program will cost $5 billion.

In the District of Columbus area, Ronald Reagan National Airport is being totally rebuilt for $1 billion. Washington Dulles is doubling the size of its main terminal and has doubled its gate capacity over the past few years. Baltimore/Washington International has a $500 million renovation underway, with completion expected by 2000.

VIII. AIR CARGO TONNAGE FORECAST

Air cargo may well be subordinate to the passenger market, but it is a significant part of the aviation industry. This chapter defines air cargo and discusses historical cargo activity. The next sections explain the air cargo forecast methodology and the factors that affect air cargo demand. Forecast results are also discussed.

A. AIR CARGO DEFINED

Air cargo, carried in both the belly of commercial passenger aircraft and in freighter aircraft, is comprised of three components: freight, express and mail. Freight shipments are high value or time-sensitive products, such as electronic equipment or tulip bulbs. Express shipments move on a time-definite basis (i.e., next day) and typically weigh 100 pounds or less. Air mail is first-class U.S. post carried almost entirely in the belly of regularly scheduled commercial passenger aircraft.

Freight is generally carried by air carriers either in the belly of commercial passenger aircraft or, more often, on freighter aircraft. Freight shipments can range from a few pounds to several tons, or from a pallet of fruit to a classic automobile. Air freight distribution channels typically involve freight forwarders at both the origin and destination airports who act as agents between the shipper and consignee. In contrast, the fully integrated operators like FedEx control the entire distribution channel from shipper to consignee.

Express packages usually weight less than 100 pounds and are time sensitive. Express is the fastest growing segment of air cargo as several dominant express operators, including FedEx, United Parcel Service (UPS), Airborne Express and DHL, have expanded their integrated networks throughout the world. These express operators are referred to as "integrated" carriers because they control, or integrate, all facets of the shipment from the point of sale to ground transportation to air shipment to point of delivery.

Air mail, the smallest of the three air cargo components is first-class post and is carried almost entirely in the bellies of commercial passenger aircraft. Air carriers first obtained their operating certificates in the 1920s by carrying U.S. mail both domestically and abroad. The U.S. Postal Service (USPS) has successfully diversified into the express service operation by providing guaranteed next-day, small package delivery service known as Express Mail.

The DOA organizes its historical cargo data into three slightly different categories: (i) domestic freight and express, (ii) international freight and (iii) mail. However, domestic freight and express data is almost entirely express (as defined above), while international freight contains little express activity.

B. HISTORICAL AIR CARGO

Total air cargo for O'Hare and Midway is forecast separately. Studying the historical growth and marketplace context are critical steps of any forecast. The peaks and troughs of the business cycle are typically reflected in the aggregate activity. Select components and sectors (i.e., domestic and international) are highlighted where significant annual variances occur.

1. O'Hare

O'Hare is the fifth-busiest air cargo airport in North America and the ninth busiest in the world. **Table VIII-1** shows the top 15 North American and world airports in air cargo activity in 1997. Rankings are based on annual total air cargo tons.

Table VIII-1
Chicago Airport System Forecast
Airport Ranking Based on Total Air Cargo Tons

	World Airport Ranking		North American Airport Ranking	
1.	Memphis	2,233,490	Memphis	2,233,490
2.	Los Angeles	1,872,528	Los Angeles	1,872,528
3.	Hong Kong	1,813,122	Miami	1,765,827
4.	Miami	1,765,827	New York-JFK	1,661,400
5.	Tokyo - Narita	1,738,795	Chicago-O'Hare	1,407,589
6.	New York - JFK	1,661,400	Louisville	1,345,318
7.	Seoul	1,567,639	Anchorage	1,289,625
8.	Frankfurt	1,514,278	Newark	1,048,954
9.	Chicago O'Hare	1,407,589	Atlanta	864,474
10.	Singapore	1,358,044	Dayton	812,440
11.	Louisville	1,345,318	Dallas-Fort Worth	810,621
12.	Anchorage	1,289,625	San Francisco	779,923
13.	London	1,268,621	Oakland	696,487
14.	Amsterdam	1,207,282	Indianapolis	662,922
15.	Newark	1,048,954	Toledo	520,704

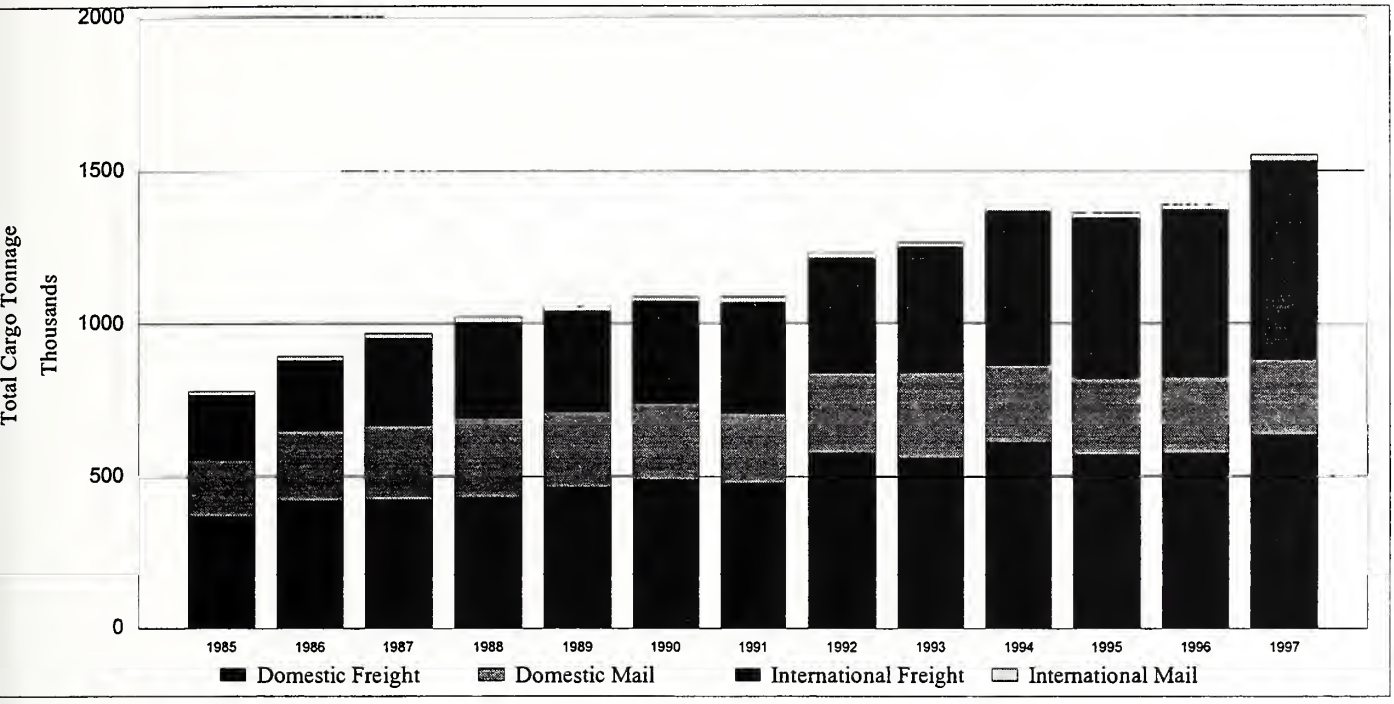
Source: Airports Council International-North America

Since 1985, total air cargo activity at O'Hare has increased from approximately 781,000 tons to 1.551 million tons in 1997, or 5.9 percent per annum. As **Table VIII-2** indicates, total domestic freight and express activity, which has risen from approximately 369,000 tons in 1985 to 636,000 tons in 1997, or about 4.6 percent per annum, has fueled most of this growth. Domestic freight and express growth has been driven by the enormous expansion of integrated operators' (i.e., FedEx and UPS) shipping express parcels and packages. Between 1985 and 1997, domestic freight and express volumes have been growing at an average annual rate of 4.4 percent and now account for over 40 percent of the domestic cargo activity at O'Hare.

Domestic belly freight tonnage has slid from approximately 262,000 tons in 1985 to 256,000 tons in 1997, after peaking in 1989 at nearly 300,000 tons (see **Table VIII-3**). The shrinkage of domestic belly cargo may correspond to higher passenger load factors at O'Hare over the same period. Higher passenger load factors generate additional loaded baggage, thereby consuming belly holds otherwise utilized for domestic freight. Domestic scheduled airlines have also surrendered market share to the integrated carriers whose reliability and excellent service levels have challenged traditional freight shipping channels.

International freight traffic has expanded well above both the GDP and passenger growth rates. In 1997, O'Hare handled approximately 648,000 tons of international freight, up from 210,000 tons in 1985, representing an average annual growth rate of over 9.8 percent (see

Table VIII-2
Chicago Airport System Forecast
Chicago-O'Hare International Airport
Total Air Cargo Tonnage



	Domestic		International		Total		Total
Year	Freight	Mail	Freight	Mail	Freight	Mail	Air Cargo
1985	369,039	187,527	210,074	14,115	579,113	201,641	780,754
1986	421,593	229,902	228,897	15,801	650,490	245,703	896,193
1987	423,923	243,420	286,697	16,315	710,620	259,736	970,356
1988	431,348	258,405	315,245	17,350	746,593	275,755	1,022,347
1989	464,022	245,293	333,746	13,647	797,768	258,940	1,056,708
1990	489,429	248,921	336,102	13,391	825,531	262,312	1,087,843
1991	477,548	228,770	364,587	17,608	842,135	246,377	1,088,512
1992	577,036	262,338	375,158	14,922	952,194	277,260	1,229,454
1993	561,030	279,688	409,292	14,070	970,322	293,758	1,264,080
1994	610,268	253,241	504,815	16,289	1,115,083	269,530	1,384,613
1995	572,818	247,154	525,455	16,886	1,098,273	264,040	1,362,313
1996	576,402	248,554	546,201	17,883	1,122,602	266,437	1,389,039
1997	636,417	246,269	648,391	20,528	1,284,808	266,798	1,551,606
	Average Annual Compound Growth Rates						
1985 - 1997	4.6%	2.3%	9.8%	3.2%	6.9%	2.4%	5.9%

Source: Chicago DOA Management Records
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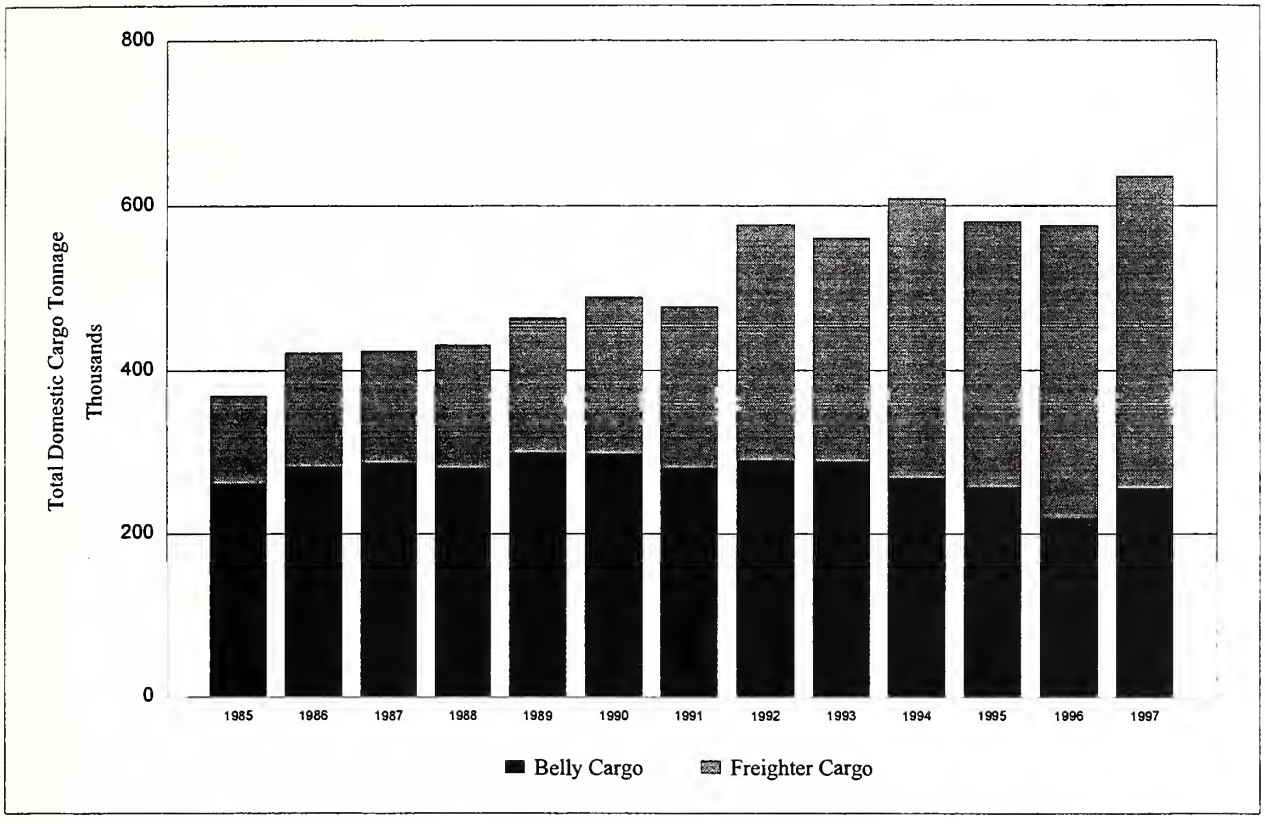
Table VIII-3
Chicago Airport System Forecast
Chicago-O'Hare International Airport
Domestic Cargo Tonnage



Year	Belly Freight/Express	Freighter Freight/Express	Total Domestic Tonnage
1985	261,820	107,219	369,039
1986	281,795	139,798	421,593
1987	287,227	136,696	423,923
1988	280,382	150,966	431,348
1989	299,238	164,784	464,022
1990	298,116	191,313	489,429
1991	280,213	197,335	477,548
1992	289,901	287,135	577,036
1993	288,752	272,278	561,030
1994	268,430	340,838	609,268
1995	256,534	324,284	580,818
1996	219,008	357,394	576,402
1997	255,911	380,506	636,417
	Average Annual Compound Growth Rates		
1985 - 1997	-0.2%	11.1%	4.6%

Source: Chicago DOA Management Records
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Table VIII-2). Over this period, O'Hare's stature as an international gateway has been greatly enhanced with the construction of Terminal 5, additional international air service and a more liberal bilateral regime. As at most major gateways, Pacific Rim air cargo activity has grown considerably. O'Hare's total trans-Pacific air cargo tonnage has risen from an estimated 28 percent in 1985 to 42 percent in 1997. Today, freighters handle an estimated 32 percent of the trans-Atlantic air cargo and nearly 68 percent of the trans-Pacific air cargo.

Table VIII-4 shows the growth and maturity of the trans-Pacific air cargo sector. The data further suggests that the trans-Pacific market is largely freighter intensive, at least compared to the trans-Atlantic market. More restrictive bilateral agreements, coupled with aircraft range and filled payload capacities, further discourage a vibrant belly cargo market on the trans-Pacific routes.

Domestic air mail has grown at 2.3 percent per annum, from 187,000 tons in 1985 to 246,000 tons in 1997 (see Table VIII-2). However, annual air mail growth has slowed since 1991 to about 1.7 percent. Similarly, international air mail grew at 3.2 percent from 1985 to 1997; however, from 1991 to 1997, growth was less than 1 percent per annum. The flattening of domestic and international air mail growth is, as some industry analysts have suggested, an indication of the increased use of express parcel delivery over first class mail services. In addition, slower growth in first class mail activity is often attributed to the impact of expanding electronic transmissions (i.e., e-mail).

2. Midway

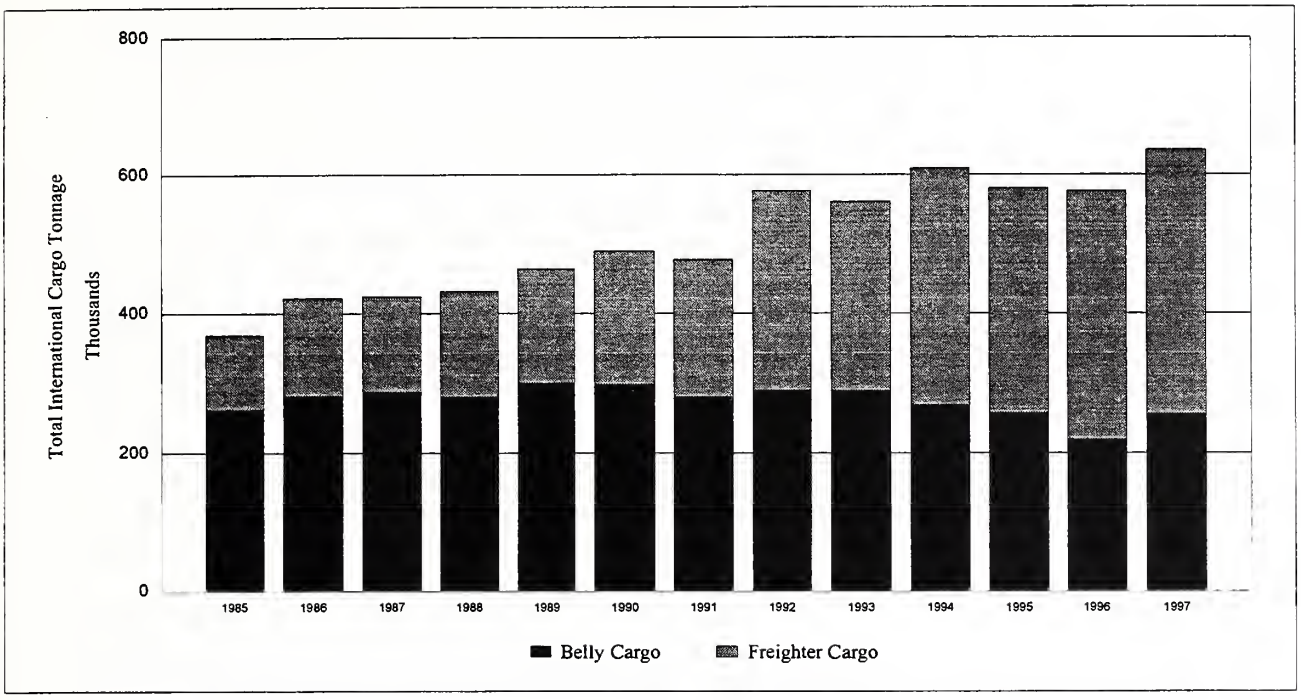
Since 1985, total air cargo at Midway has grown at rapid pace, reflecting, in large measure, the growth of operations and the increase in the airport's overall level of air service. Midway's 1997 total air cargo activity was approximately 33,000 tons. Unlike most widebody aircraft, the narrowbody commercial aircraft that predominantly serve Midway do not take containers of air cargo (i.e., loading devices), which limits the air cargo activity to lower levels of loose belly freight.

Express volumes remain low (about 4,000 tons in 1997) at Midway primarily because of the express carriers' large facilities and operations at O'Hare discourage duplicative service and facilities at Midway. However, express volumes have been boosted by the daily service provided by the integrated carrier Airborne Express (i.e., daily DC-9F).

Domestic freight at Midway is carried entirely in the belly of passenger aircraft. Since 1987, domestic freight has increased by nearly 4.2 percent per annum. However, tons per operation at Midway (i.e., domestic freight tons/domestic air carrier movements) have fallen by nearly 25 percent since 1987 from 6.28 tons per operation to 4.74 tons per operation. At least two factors have contributed to this fall in air cargo loads: rising load factors and Southwest Airlines' "quick turns." As loads factors increase, additional belly hold lift is consumed by baggage. Southwest's operational focus on quick turnarounds (i.e., less than 20 minutes) discourages the loading of loose or bulk freight.

Over the last decade, air mail volumes have been erratic at Midway. In 1990, air mail volumes peaked at approximately 10,000 annual tons. Midway Airlines had developed a strong air mail business from its hub at Midway, from which it served such major markets as Boston, New York, Philadelphia and Washington, D.C., all of which are large air mail

Table VIII-4
Chicago Airport System Forecast
Chicago-O'Hare International Airport
International Cargo Tonnage



	1985	Percent of Category Total	1997	Percent of Category Total
Atlantic				
Belly	122,245	76.0%	294,324	68.1%
Freighter	4,895	10.0%	69,787	32.2%
Subtotal Atlantic	127,140	60.5%	364,110	56.2%
Pacific				
Belly	16,381	10.2%	125,084	29.0%
Freighter	42,887	87.2%	146,655	67.7%
Subtotal Pacific	59,269	28.2%	271,739	41.9%
Other				
Belly	22,249	13.8%	12,518	2.9%
Freighter	1,416	2.9%	24	0.0%
Subtotal Other	23,665	11.3%	12,542	1.9%
Total				
Belly	160,875	76.6%	431,926	66.6%
Freighter	49,198	23.4%	216,465	33.4%
Grand Total	210,074	100.0%	648,391	100.0%

	Average Annual Compound Growth Rates 1985-1997
Atlantic	9.2%
Pacific	13.5%
Other	-5.2%
Total	9.8%

Source: Chicago DOA Management Records
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markets. Southwest and ATA Airways replace service by Midway Airlines, but serve less dense air mail corridors. None of the carriers presently serving Midway has developed the air mail business that Midway Airlines built. However, steady growth in recent years suggests that air mail at Midway is rebounding.

Table VIII-5 shows air cargo growth at Midway since 1987. The rise and fall of Midway Airlines, as well as the expansion of Southwest Airlines' air service, are evident in the sharp annual changes in air cargo activity between 1991 and 1997.

C. AIR CARGO FORECAST METHODOLOGY

Forecasting air cargo demand is a multi-step process requiring quantitative applications and qualitative judgment. Historical activity is not the sole indicator of future performance, but careful analysis of past peaks and troughs often provides insight into how and to what extent such structural changes as mergers and acquisitions or such system shocks as the Persian Gulf War affect demand.

Air cargo activity is a derived demand, i.e., air cargo services respond to an economic transaction already generated. A consumer does not order boots from L.L. Bean to use overnight delivery service; the purchase of the boots results in the use of overnight delivery service. Therefore, derived demand forecasting models utilize general economic variables to project demand. Often a reliable (and statistically significant) correlation can be quantitatively determined by analyzing relationships between economic variables (i.e., gross domestic product) and the derived activity (i.e., air cargo tons). This methodology is employed for portions of this forecast.

Sophisticated quantitative methods do not always lend themselves to reasonable demand projections. In these cases, a trend analysis is performed. Trend analysis is supported by ratio testing, reasonable assumptions and consideration of factors that affect demand. For example, if domestic air mail activity has been growing 1.0 percent per annum (i.e., trend) over the last two decades, and the pounds of air mail per domestic operation have been steady (i.e., ratio test), there are few reasons to believe that air mail activity will deviate much from this trend.

This air cargo forecast is essentially a "bottom-up" forecast. Local economic and demographic variables are used with System activity data to forecast air cargo demand. The five steps used to derive the air cargo forecast are outlined below.

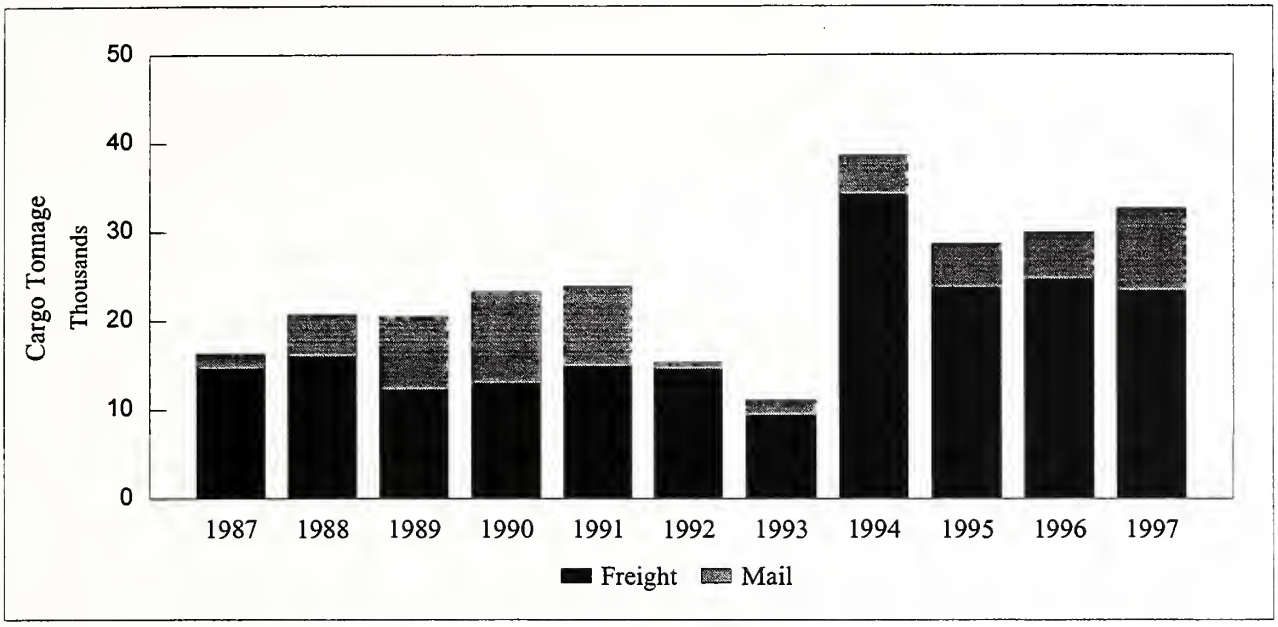
1. Data Collection

The DOA's historical activity data from 1985 to 1997 was used for both O'Hare and Midway. The data provides air cargo tonnage and aircraft operations by airline and airport.

2. Sectors and Disaggregation

The historical data is split into the two major sectors: domestic and international. Each sector's air cargo activity is further disaggregated into freight, express and mail, and each component is forecast separately. This yields a more nuanced result because each component and aircraft type is subject to different market forces. Furthermore, as each component is shipped as belly freight on commercial passenger aircraft or on freighter aircraft, each sector and component is correspondingly separated into belly and freighter cargo.

Table VIII-5
Chicago Airport System Forecast
Chicago Midway Airport
Historical Air Cargo



	Domestic		
Year	Freight	Mail	Total
1987	14,632	1,616	16,248
1988	15,976	4,683	20,659
1989	12,250	8,210	20,460
1990	12,937	10,300	23,237
1991	14,890	8,933	23,823
1992	14,544	691	15,235
1993	9,398	1,614	11,012
1994	34,243	4,350	38,593
1995	23,727	4,865	28,592
1996	24,616	5,268	29,884
1997	23,339	9,285	32,624
	Average Annual Compound Growth Rate		
1987-1997	4.8%	19.1%	7.2%

Source: Chicago Department of Aviation Management Records

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3. Independent Variables Sourcing and Selection

Each air cargo component is now considered with respect to macro economic conditions. The selection of independent variables is an important exercise in designing a regression analysis. There should be a plausibility of correlation between the dependent (i.e., air cargo activity) and independent variables (i.e., Chicago Region income).

The historical and forecast population, employment and income data for the domestic air cargo forecast were obtained from the NPA. Historical and forecast exchange rate indices and gross domestic product data for European and Asian nations were obtained from DRI Economics for the international cargo forecast models.

4. Regression and Trend Analyses

Depending on the air cargo component and aircraft type (i.e., belly or freighter), a regression forecast or trend forecast was performed. **Table VIII-6** summarizes the forecast method, independent variable and regression statistics and select trends for each component forecast.

5. Reasonableness Tests

Once the forecasts are performed, each is analyzed for "reasonableness." Occasionally, a regression equation will provide unsatisfactory results even though its statistical tests are within acceptable bounds. The application of trend analysis may also yield an unacceptable compounding effect; therefore, each forecast component again is analyzed with respect to the unique features and constraints of the Chicago Region's air cargo market. Ratio tests employed for each component include the forecast of tons/pounds per operation as it compares to recent historical ratios. For comparative purposes, other industry forecasts were consulted to help place these forecasts in perspective industry-wide, including Boeing and MergeGlobal Inc., a Washington, D.C.-based air cargo industry forecasting and consulting firm.

D. FACTORS AFFECTING AIR CARGO DEMAND

Demand is subject to market forces, and market forces are not always anticipated, nor is their impact readily determined. With respect to air cargo demand, the select factors that may affect air cargo demand are discussed below. These factors are considered in the context of the air cargo forecast logic and in assessing the reasonableness of forecast results. Precise quantitative values are difficult to assign to these factors, so a positive (+), negative (-) or neutral (N) impact of a factor is indicated in parenthesis in each factor's heading.

1. Gross Domestic Product (+)

Regional, national and world GDPs are arguably the single most influential factor affecting air cargo demand. As an aggregate measure of income and wealth, rising GDP suggests a correlating rise in demand for goods and services. Air cargo demand by its derivative function rises with GDP. In the aggregate, air cargo growth rates have been and are forecast to track at twice or more GDP rates of growth. In fact, Boeing estimates that since 1970, worldwide air cargo growth has exceeded world GDP growth by a factor of 2.5.

Table VIII-6
Chicago Airport System Forecast
Forecast Matrix

Airport/Sector	Method	Independent Variables Regression Statistics *	Select Trends
ORD Domestic Air Cargo			
a. Belly Freight	Trend	N/A	Increasing load factors; airline baggage policies
b. Express	Regression	Chicago Region Income (+) R2 = .91	Growth rate twice GDP
c. Mail	Trend	N/A	Lbs. per operation; increasing load factors; airline baggage policies
ORD International Air Cargo			
a. Belly Freight	Regression	Chicago Region Income (+) European + Pacific Rim GDP (+) R2 = .97	Increasing aircraft gauge and load factors
b. Freight	Regression	Chicago Region Income (+) European + Pacific Rim GDP (+) R2 = .97	Asian market share; exchange rate impacts
c. Mail	Trend	N/A	Increasing load factors; e-mail
MDW Domestic Air Cargo			
a. Belly Freight	Trend	N/A	Southwest vs. Midway Airlines operation; "quick turns" discourage belly freight
b. Express	Trend	N/A	Single operator; niche market; macro trend = double GDP
c. Mail	Trend	N/A	Increasing load factors and "quick turn" operations impact air mail operation
d. Other	Trend	N/A	FBOs report general aviation air cargo; specialized service providers (i.e., bank check couriers)

** The (+) indicate sign of co-efficient of independent variables.*

2. Just-in-Time Inventory (+)

This manufacturing and distribution practice seeks to minimize product inventory by narrowing the time between production cycles and wholesale distribution. The price and availability of air cargo service have enabled manufacturers to ship on demand, thereby getting products from production to market in short order. Major industries, like apparel and technology products with off-shore or overseas production and assembly operations, employ just-in-time practices. This factor is expected to continue to stimulate air cargo demand.

3. Air Cargo Lift (+/-)

The availability of freighter and belly capacity (i.e., available ton miles) provides a measure of the supply-side of air cargo economics. Airframe manufacturers are forecasting increasing lift, cargo measured in tonnage, based on the general worldwide up-gauging of aircraft and the continued conversion of older, widebody aircraft to cargo, particularly the B-747-100 and -200 series. Large freighters capable of carrying more than 50 tons of cargo are expected to consume an increasing larger share of the freighter market demand. With respect to scheduled passenger aircraft, increasing load factors will consume more belly hold with baggage. In addition, domestic freight may be crowded out of belly holds as air carriers implement stricter baggage check and carry on requirements.

4. Trade and Bilateral Liberalization (+)

By most analysts' and observers' accounts, global trade is becoming less restrictive. The Untied States has taken a lead role in this worldwide trend; in aviation, the United States has consistently and successfully promoted "open skies" agreements. Additional aviation liberalization, particularly with respect to Japan and the United Kingdom, will further enhance air cargo route authority for U.S. freighter airlines.

5. Electronic Processing (N)

Freight forwarders, customs brokers, shippers, airlines and U.S. Customs are aggressively seeking improved electronic processing of air cargo documentation and clearance. Automation will improve facilitation but will not materially affect growth.

6. Expansion of Express Services (+)

U.S. express operators like DHL, UPS and FedEx are expanding their express package/parcel business to international markets, mostly by acquiring ground courier operations abroad and meshing the acquisition into air service delivery. From their core success in express package/parcel delivery, U.S. express operators also are expanding into the traditional freight and heavy freight markets.

7. Electronic Communication (-)

The proliferation of internet technology, particularly e-mail, will have a dampening effect on first class domestic and international mail. E-mail is quickly becoming a standard office and household service, incrementally supplanting postage services. Both the air mail forecast and the USPS consider e-mail a material factor affecting air mail demand.

8. Foreign Exchange Fluctuations (N)

Currency valuations and devaluations impact the balance of trade between imports and exports. A falling dollar boosts U.S. air cargo exports (i.e., enplaned international air cargo); a rising dollar generates increased imports (i.e., deplaned international air cargo). The forecasting model assumes a negligible impact on total imports and exports.

9. New Air Eligible Products (+)

New commercial and consumer products likely will become air eligible products, adding activity volumes into the air cargo market.

10. Falling Air Cargo Yields (+)

The price per unit for shipping via air cargo (i.e., per kilogram per kilometer) continues to decline in real terms. According to MergeGlobal, Inc., real air cargo yields have fallen about 2.5 per cent per annum since 1970. Falling yields will continue to stimulate the market and boost demand.

E. FORECAST RESULTS

The forecast of annual air cargo tonnage by sector and component for both O'Hare and Midway is in short tons (i.e., 2000 pounds) and AACGR, an acronym for average annual compound growth rate. The component forecast methodology is indicated in parenthesis as (T) for a trend forecast and (R) for a regression forecast.

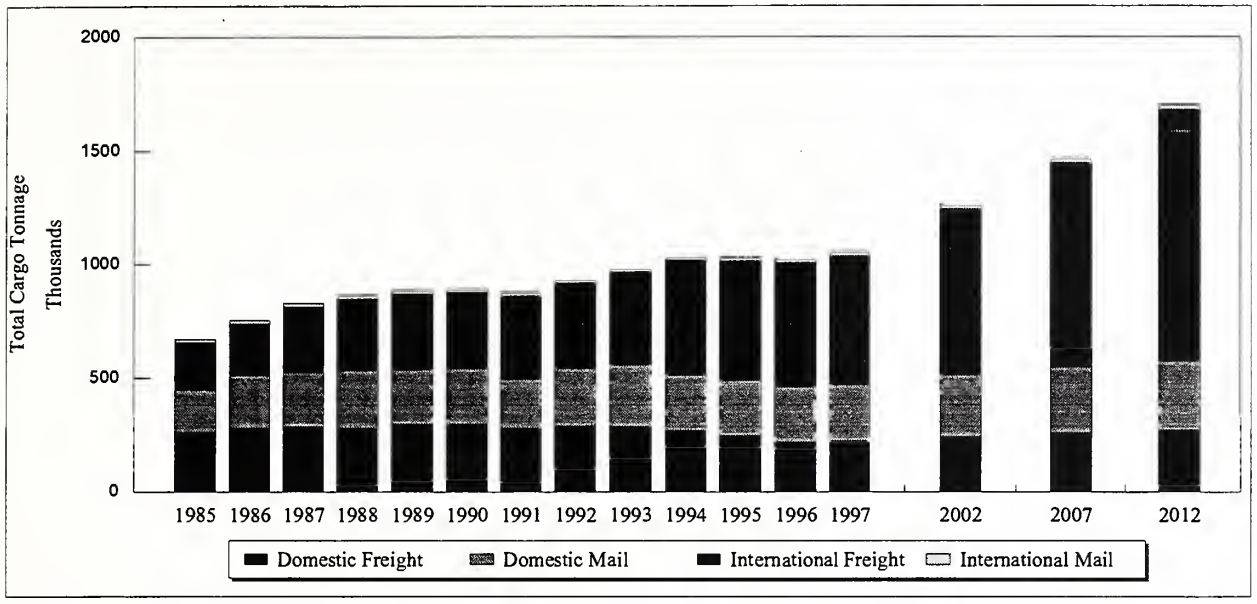
1. O'Hare

The total tonnage forecast for all components of O'Hare's air cargo is forecast to expand in the short term at 4.1 percent AACGR and over the long-term forecast horizon at 2.6 percent. **Table VIII-7** summarizes O'Hare's historical and forecast tons for each air cargo component.

a. Domestic Belly Freight (T)

Domestic belly freight is forecast over the long term to grow at 1.3 percent AACGR. The fleet mix at O'Hare favors widebody aircraft that are container-capable. Containerization of belly freight increases belly lift and expedites loading and unloading. Although O'Hare's belly freight activity has stalled in recent years, this is not expected to continue over the forecast horizon as the hub carriers continue to increase gauge and seek incremental revenue opportunities. Domestic mail traditionally has surpassed belly cargo in total annual tons. Belly air mail takes loading priority over belly freight; however, slower forecast growth in air mail, coupled with increasing domestic gauge, should provide incremental lift for domestic belly freight.

Table VIII-7
Chicago Airport System Forecast
Chicago-O'Hare International Airport
Total Air Cargo



Year	Domestic Freight/ Express	Domestic Mail	International Freight/ Express	International Mail	Total Freight/ Express	Total Mail	Total Cargo
1985	261,819	185,249	210,074	14,114	471,893	199,363	671,256
1986	281,794	228,709	228,897	15,801	510,691	244,510	755,201
1987	287,226	240,045	286,697	16,315	573,923	256,360	830,282
1988	280,382	252,694	315,245	17,349	595,627	270,043	865,670
1989	299,238	238,739	333,746	13,647	632,984	252,386	885,370
1990	298,115	243,863	336,102	13,391	634,217	257,254	891,471
1991	280,213	216,039	364,587	17,607	644,800	233,646	878,446
1992	289,901	253,608	375,158	14,921	665,059	268,529	933,588
1993	288,752	270,397	409,292	14,070	698,044	284,467	982,511
1994	269,430	244,479	504,815	16,289	774,245	260,768	1,035,013
1995	248,534	240,200	525,455	16,886	773,989	257,086	1,031,075
1996	219,007	241,912	546,201	17,883	765,208	259,795	1,025,002
1997	223,387	246,750	567,362	18,240	790,749	264,990	1,055,740
2002	244,225	269,768	729,919	19,942	974,144	289,710	1,263,854
2007	260,514	287,760	899,395	21,272	1,159,909	309,032	1,468,942
2012	273,803	302,439	1,106,719	22,357	1,380,522	324,796	1,705,318
	Average Annual Compound Growth Rate						
1985 - 1997	-1.3%	2.4%	8.6%	2.2%	4.4%	2.4%	3.8%
1997 - 2002	1.8%	1.8%	5.2%	1.8%	4.3%	1.8%	3.7%
2002 - 2007	1.3%	1.3%	4.3%	1.3%	3.6%	1.3%	3.1%
2007 - 2012	1.0%	1.0%	4.2%	1.0%	3.5%	1.0%	3.0%
1997 - 2012	1.4%	1.4%	4.6%	1.4%	3.8%	1.4%	3.2%

Source: Chicago Department of Aviation Management Records, and Landrum & Brown, Inc.

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b. Domestic Freight & Express (R)

Strong growth is projected in the short term at 7.2 percent AACGR and 3.9 percent over the forecast horizon. Industry forecasts and this regression result show express traffic sustaining growth at two or more times (+2x) the rate of GDP. Over 85 percent of the total domestic freight and express activity at O'Hare is "express" volume handled by the integrated carriers, including FedEx, UPS, DHL Airways and Airborne Express. The express package/parcel market has been an exceptional domestic growth market for nearly two decades.

c. Domestic Mail (T)

Domestic air mail activity is forecast to grow incrementally over the long term forecast horizon at 1.2 percent AACGR. Increased trucking of first-class mail, coupled with the impact and proliferation of electronic mail (i.e., "e-mail"), suggests flatter growth. The Chicago Region's large population and commercial base, coupled with a dual hub operation that generates high frequencies to numerous markets, makes O'Hare an excellent air mail facility. Domestic air mail is carried in the belly of scheduled commercial aircraft. The express packages that the USPS ships through freighter aircraft (i.e., contract wet-lease with Emery Worldwide) is included in the domestic freight & express forecast.

d. International Freight & Express (R)

The international freight and express forecast for O'Hare suggests a continued and sustainable rate of growth for the forecast period at 4.3 percent AACGR. This growth will be supported by a continued expansion of nonstop and/or co-terminalized international route authority for both passenger and freight carriers, as well as moderate regional and world-wide economic growth.

Approximately 70 percent of the international freight tonnage at O'Hare is carried in the belly of commercial passenger aircraft; the other 30 percent is handled by freighters. However, the trans-Pacific air freight market is largely freighter-intensive, where 68 percent is handled by freighters; on the trans-Atlantic routes, only an estimated 32 percent of the activity is carried on freighters. The current Asian currency crisis is not expected to materially affect the forecast volume of international air freight; however, the share balance between enplaned and deplaned international freight, which corresponds with export and import activity, may alter.

e. International Air Mail (T)

Growth in international air mail is forecast at 1.3 percent AACGR over the forecast period. As with the domestic air mail forecast, the world wide web and electronic communications have and are forecast to flatten demand for international mail services.

2. Midway

The forecast of total air cargo at Midway will track a 2.5 percent AACGR in the short term and 1.7 percent over the forecast horizon. **Table VIII-8** summarizes Midway's historical and forecast tons for each air cargo component.

a. Domestic Freight (T)

Approximately 45 percent of the freight handled at Midway is carried in the belly of scheduled commercial aircraft. Midway is served exclusively by narrowbody aircraft that do not accept containerized freight shipments, thereby restraining belly freight activity. Non-scheduled general aviation operators handled approximately 55 percent of the total domestic freight at Midway (i.e., mostly bank check shipments). Both the scheduled belly and non-scheduled cargo carriers are expected to show growth at or below 2.0 percent per year during the long-term forecast horizon.

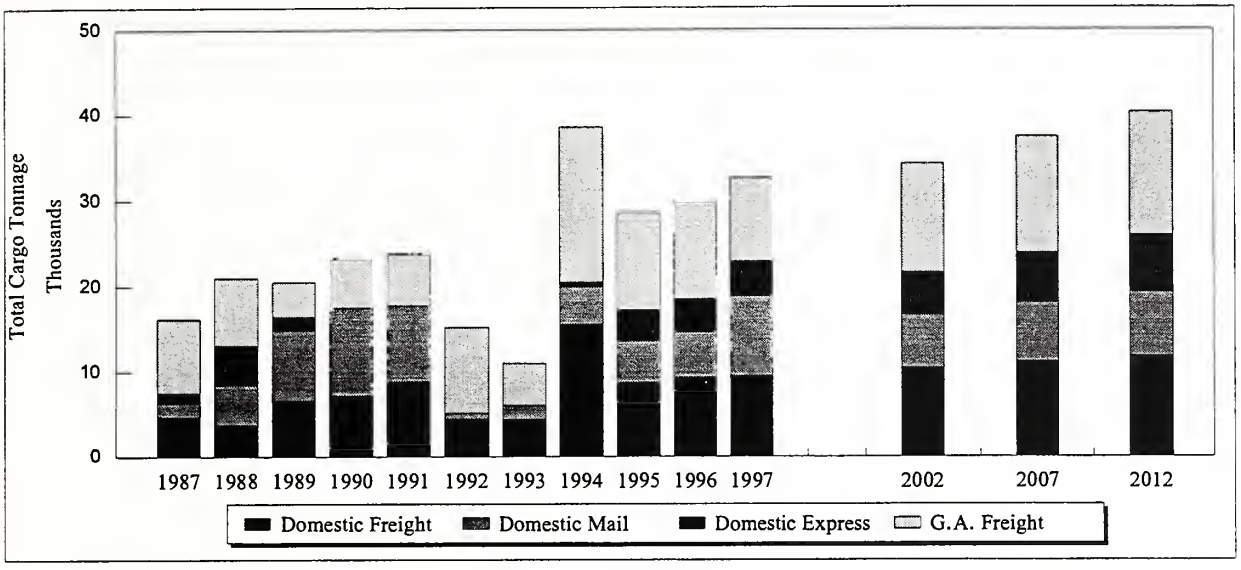
b. Domestic Express (T)

A single express or freighter operation has a considerable impact on express activity at Midway. Airborne Express operates a daily DC-9 run that accounts for all the express activity at the Airport. The integrated carriers' operations at O'Hare discourage express growth at Midway. However, AACGR is forecast to outpace gross domestic product 4.8 percent AACGR in the short term and more or less track gross domestic product at 3.0 percent AACGR over the long term.

c. Air Mail (T)

The growth of air mail is largely contingent on the reliability and frequency of scheduled activity. In the short term, growth in air mail activity is expected to pace at 2.9 percent AACGR as Southwest and American Trans Air continue to build an air mail business. The long term trend will track the USPS expectations of 2.0 percent AACGR.

Table VIII-8
Chicago Airport System Forecast
Chicago Midway Airport
Air Cargo



Year	Freight	Mail	Express	G.A. Freight	Total Cargo
1987	4,763	1,616	1,180	8,690	16,249
1988	3,800	4,683	4,660	7,876	21,019
1989	6,674	8,220	1,585	4,070	20,549
1990	7,198	10,309	0	5,844	23,351
1991	8,864	8,933	0	6,026	23,823
1992	4,467	691	0	10,077	15,235
1993	4,461	1,614	2	4,935	11,012
1994	15,608	4,350	544	18,091	38,593
1995	8,768	4,865	3,585	11,374	28,592
1996	9,366	5,268	3,901	11,348	29,883
1997	9,554	9,298	4,077	9,708	32,637
2002	10,445	6,199	4,971	12,655	34,270
2007	11,197	6,878	5,805	13,566	37,446
2012	11,855	7,492	6,596	14,364	40,307
	Average Annual Compound Growth Rate				
1987 - 1997	7.2%	19.1%	13.2%	1.1%	7.2%
1997 - 2002	1.8%	-7.8%	4.0%	5.4%	1.0%
2002 - 2007	1.4%	2.1%	3.2%	1.4%	1.8%
2007 - 2012	1.1%	1.7%	2.6%	1.1%	1.5%
1997 - 2012	1.4%	-1.4%	3.3%	2.6%	1.4%

Source: Chicago Department of Aviation Management Records, and Landrum & Brown, Inc.

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IX. AIRCRAFT OPERATIONS FORECAST

Aircraft operations, defined as aircraft arrivals plus departures, are forecast separately for the six major categories of users: domestic air carriers, international air carriers, domestic commuters, all-cargo operators, general aviation and military. All-cargo operations are further broken out by domestic and international.

Domestic operations consist of all scheduled and non-scheduled activity by air carrier and commuter airlines in which the immediate down line city on departures or up line city on arrivals are in the Continental United States, Alaska, Hawaii or a U.S. territory. Domestic passenger operations are further broken out into domestic air carrier operations and domestic commuter operations, coinciding with the enplanement forecast. The breakout of domestic commuter service is based on the individual carrier's mode of operation (i.e., providing feeds to their major airline partners, generally within 300 miles). This definition of a commuter airline does not exclude the use of air carrier jet aircraft, although historically these carriers operate turboprop and small (fewer than 72 seats) jet equipment.

For international passenger activity, operations to and from Canada were projected separately. The average stage length and gauge of equipment to Canadian markets are considerably different than the remainder of the international sector.

Domestic and international passenger operations projections are based on projected enplaned passenger volumes and take into account average seats per aircraft departure and forecast fleet mix changes (average aircraft gauge). Passenger load factor, the percentage of an aircraft's filled capacity, is calculated by dividing the number of enplaned passengers by the number of departing seats.

Non-passenger carrying all-cargo, general aviation and military aircraft operations projections are based on local historical trends, national forecasts and the factors that influence these activities.

A. DOMESTIC AIR CARRIER OPERATIONS

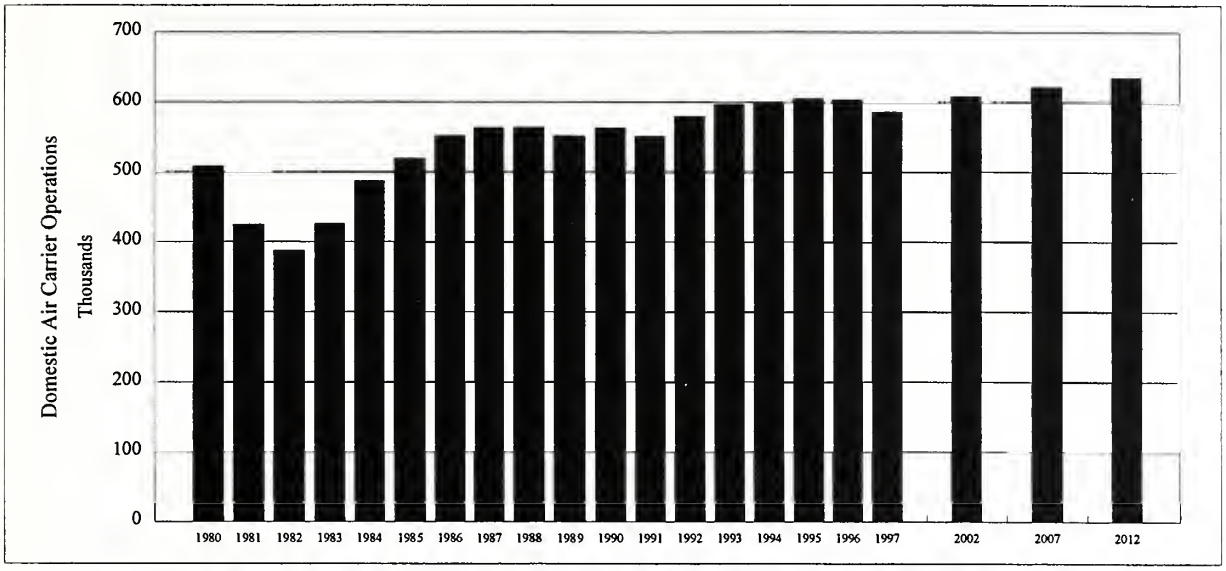
The aircraft operations for O'Hare and Midway are projected separately because of differing assumptions for each airport.

1. O'Hare

Domestic air carrier operations at O'Hare increased from 508,030 in 1980 to 586,062 in 1997, an average annual increase of 0.8 percent (see **Table IX-1**). These operations peaked at 604,560 in 1995 before dropping in 1996 and 1997. Average scheduled seats per departure declined from 154.1 in 1980 to 140.1 in 1995, before rising to 141.0 in 1996 and 1997. This decline in gauge, or aircraft size, reflects the carriers' emphasis on offering additional frequencies to the markets served over the use of larger aircraft during the period. A portion of this downsizing also can be attributed to the airlines' reducing excess capacity in the early 1990s. Average load factors increased from 52.2 percent in 1980 to 67.2 percent in 1997.

The forecast of domestic air carrier operations is driven by projections of domestic air carrier enplanements per departure. These statistics are a function of the average number of seats per aircraft departure and the average aircraft load factor. Between 1980 and 1997, domestic

Table IX-1
Chicago Airport System Forecast
Chicago-O'Hare International Airport
Domestic Air Carrier Operations Forecast



Domestic Air Carrier Activity

	Year	Average Seats Per Scheduled Departure	Load Factor	Average Enplanements Per Scheduled Departure	Domestic Air Carrier Enplanements	Domestic Air Carrier Departures	Domestic Air Carrier Operations
Actual	1980	154.1	52.2%	80.5	19,684,429	254,015	508,030
	1981	152.6	50.9%	77.6	16,708,646	212,315	424,629
	1982	155.6	55.3%	86.1	16,263,544	193,804	387,608
	1983	154.9	56.7%	87.9	18,799,142	213,066	426,132
	1984	153.5	50.9%	78.1	19,848,060	243,857	487,714
	1985	152.6	46.0%	70.2	20,369,355	259,365	518,729
	1986	158.3	50.2%	79.4	22,617,496	275,922	551,844
	1987	159.7	51.7%	82.6	23,976,214	281,602	563,204
	1988	157.0	54.4%	85.4	24,786,627	282,085	564,170
	1989	154.4	56.4%	87.0	24,789,923	275,742	551,484
	1990	153.7	56.4%	86.7	25,008,590	281,479	562,957
	1991	153.0	57.9%	88.6	24,954,236	275,602	551,203
	1992	150.4	60.6%	91.2	26,783,294	289,719	579,437
	1993	148.8	59.2%	88.1	26,818,414	298,760	597,519
	1994	144.0	64.3%	92.6	27,257,146	299,630	599,260
	1995	140.1	65.6%	91.9	27,210,056	302,280	604,560
	1996	141.0	66.6%	93.9	28,041,604	301,586	603,172
	1997	141.0	67.2%	94.7	28,409,209	293,031	586,062
Forecast	2002	144.0	68.1%	98.1	30,509,100	304,000	608,000
	2007	147.5	69.0%	101.8	32,376,300	310,700	621,400
	2012	151.0	70.0%	105.7	34,342,600	317,400	634,800
		Average Annual Compound Growth Rate					
	1980 -1997	-0.5%	1.5%	1.0%	2.2%	0.8%	0.8%
	1997 - 2002	0.4%	0.3%	0.7%	1.4%	0.7%	0.7%
	2002 - 2007	0.5%	0.3%	0.8%	1.2%	0.4%	0.4%
	2007 - 2012	0.5%	0.3%	0.8%	1.2%	0.4%	0.4%
	1997 - 2012	0.5%	0.3%	0.7%	1.3%	0.5%	0.5%

Sources: Actual - Department of Aviation records, Official Airline Guide; Forecast - Landrum & Brown, Inc.
Note: Detail may not add due to impact of non-scheduled Operations.
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air carrier enplanements per departure have increased steadily from 80.5 to 94.7. This growth trend is projected to continue through the forecast period, increasing to 105.7 enplanements per departure in 2012. This average enplanement per departure projection results from the forecast 151 average seats per departure and the projected 70 percent average load factor. This forecast average air carrier aircraft gauge of 151 seats reflects, in part, the confirmed and optioned aircraft orders placed by the air carriers serving O'Hare. The forecast load factors of 68.1 percent in 2002, reaching 70.0 percent in 2012, are slightly higher than historical averages, but are believed sustainable due to the airlines' improved yield management systems.

The foregoing assumptions result in domestic air carrier operations increasing from 586,062 operations in 1997 to 634,800 operations in 2012, an average annual growth rate of 0.5 percent.

2. Midway

Domestic air carrier operations at Midway increased from 13,947 in 1980 to 116,244 in 1997, an average annual increase of 13.3 percent (see **Table IX-2**). Domestic air carrier operations had a roller coaster history with the establishment, success and subsequent bankruptcy of Midway Airlines and the expansion of service by Southwest Airlines. Domestic air carrier operations peaked at 131,289 operations in 1988, falling to 62,307 operations in 1992 after Midway Airlines ceased operation. Operations rebounded to over 120,000 in 1994 and 1995 because of new service initiated by Southwest. Domestic air carrier operations were flat at just over 116,000 in 1996 and 1997.

Average scheduled seats per departure increased from 76.8 in 1980 to 130.1 in 1997, and average load factors increased during this period from 54.7 percent to 59.6 percent. The combination of these factors resulted in average enplanements per departure increasing from 42.0 in 1980 to 77.5 in 1997 as shown in Table IX-2.

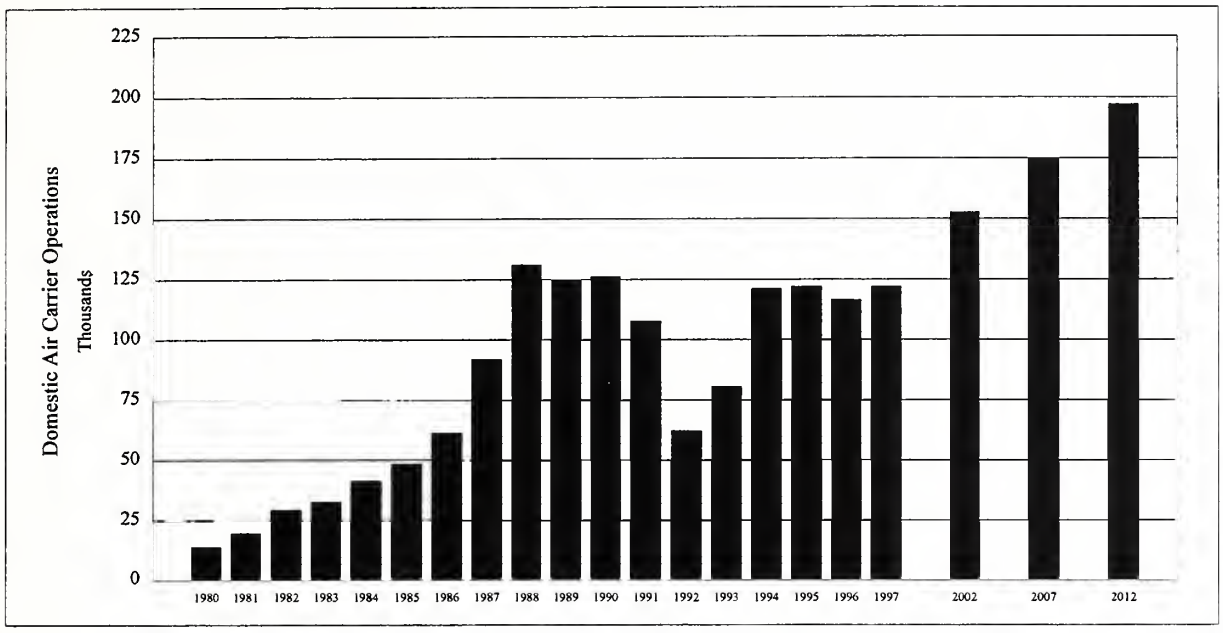
The forecast of domestic air carrier operations is driven by projections of domestic air carrier enplanements per departure. The growth trend of enplanements per departure is projected to continue through the forecast period, increasing to 86.3 enplanements per departure by 2012. This average enplanement per departure projection results from the forecast 137.0 average seats per departure (which takes into account new aircraft orders) and the projected 63.0 percent average load factor.

The foregoing assumptions result in domestic air carrier operations increasing from 116,244 operations in 1997 to 187,800 operations in 2012, an average annual growth rate of 3.2 percent.

B. DOMESTIC COMMUTER AIRCRAFT OPERATIONS

The domestic commuter aircraft operations for O'Hare and Midway are projected separately because of differing assumptions for each airport.

Table IX-2
Chicago Airport System Forecast
Chicago Midway Airport
Domestic Air Carrier Operations Forecast



Domestic Air Carrier Activity

	Year	Average Seats Per Scheduled eparture	Load Factor	Average Enplanements Per Scheduled Departure	Domestic Air Carrier Enplanements	Domestic Air Carrier Departures	Domestic Air Carrier Operations
Actual	1980	76.8	54.7%	42.0	314,239	6,974	13,947
	1981	75.6	65.5%	49.5	561,196	9,792	19,583
	1982	81.8	59.4%	48.6	719,823	14,579	29,157
	1983	86.5	52.7%	45.5	749,201	16,229	32,457
	1984	95.7	43.1%	41.2	935,992	20,600	41,199
	1985	97.9	48.1%	47.1	1,238,532	24,210	48,420
	1986	99.7	53.5%	53.3	1,683,716	30,598	61,196
	1987	104.3	52.3%	54.5	2,513,762	45,975	91,949
	1988	103.4	51.7%	53.5	3,186,698	65,645	131,289
	1989	104.5	53.6%	56.0	3,597,773	62,215	124,429
	1990	106.4	52.6%	55.9	3,738,735	63,117	126,234
	1991	108.8	45.4%	49.4	3,061,743	53,880	107,760
	1992	120.7	52.5%	63.4	2,030,472	31,154	62,307
	1993	127.0	59.6%	75.7	3,030,511	40,248	80,496
	1994	125.2	54.7%	68.5	4,277,439	60,690	121,379
	1995	128.5	57.0%	73.3	4,551,390	61,011	122,022
	1996	132.1	56.4%	74.5	4,543,784	58,287	116,573
	1997	130.1	58.1%	75.6	4,521,367	61,011	122,022
Forecast	2002	132.3	59.7%	79.0	5,918,600	76,400	152,800
	2007	130.1	61.3%	82.6	7,065,000	87,300	174,600
	2012	137.0	63.0%	86.3	8,345,000	98,600	197,200
				Average Annual Compound Growth Rate			
	1980 - 1997	3.1%	0.4%	3.5%	17.0%	13.6%	13.6%
	1997 - 2002	0.3%	0.5%	0.9%	5.5%	4.6%	4.6%
	2002 - 2007	-0.3%	0.5%	0.9%	3.6%	2.7%	2.7%
	2007 - 2012	1.0%	0.5%	0.9%	3.4%	2.5%	2.5%
	1997 - 2012	0.3%	0.5%	0.9%	4.2%	3.3%	3.3%

Sources: Actual - Department of Aviation records, Official Airline Guide; Forecast - Landrum & Brown, Inc.
Note: Detail may not add due to impact of non-scheduled Operations.
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1. O'Hare

Domestic commuter operations increased from 113,439 in 1980 to 161,318 in 1997, an average annual increase of 2.1 percent (see **Table IX-3**). Domestic commuter operations peaked at 169,170 operations in 1991 and have almost returned to that level, after increasing 7.8 percent between 1996 and 1997. Average scheduled seats per departure nearly doubled from 25.2 in 1980 to 50.1 in 1997. This increase in gauge reflects the commuter carriers' transition to large turbo-prop and small regional jet equipment during the period. Average load factors also increased from 35.4 percent in 1980 to 57.6 percent in 1997.

Domestic commuter enplanements per aircraft departure have shown similar growth, increasing from 8.9 enplanements per departure in 1980 to 28.9 enplanements per departure in 1997. As shown in Table IX-3, commuter enplanements per departure are projected to show continued growth increasing to 30.6 enplanements per departure in 2002, 32.0 enplanements per departure in 2007 and 33.5 enplanements per departure in 2012.

The projected growth in commuter enplanements per departure will be driven by both increases in average seats per departure and average aircraft load factor. Average seats per commuter departure are forecast to increase to 54.0 by 2012. Average load factors are projected to increase to 62.0 percent in 2012. The commuter carriers serving O'Hare are all partners with major air carriers and thus benefit from the air carriers' reservation and yield management systems.

The resulting forecast of domestic commuter aircraft operations projects an increase from 161,318 operations in 1997 to 179,800 operations in 2012, an average annual increase of 0.7 percent.

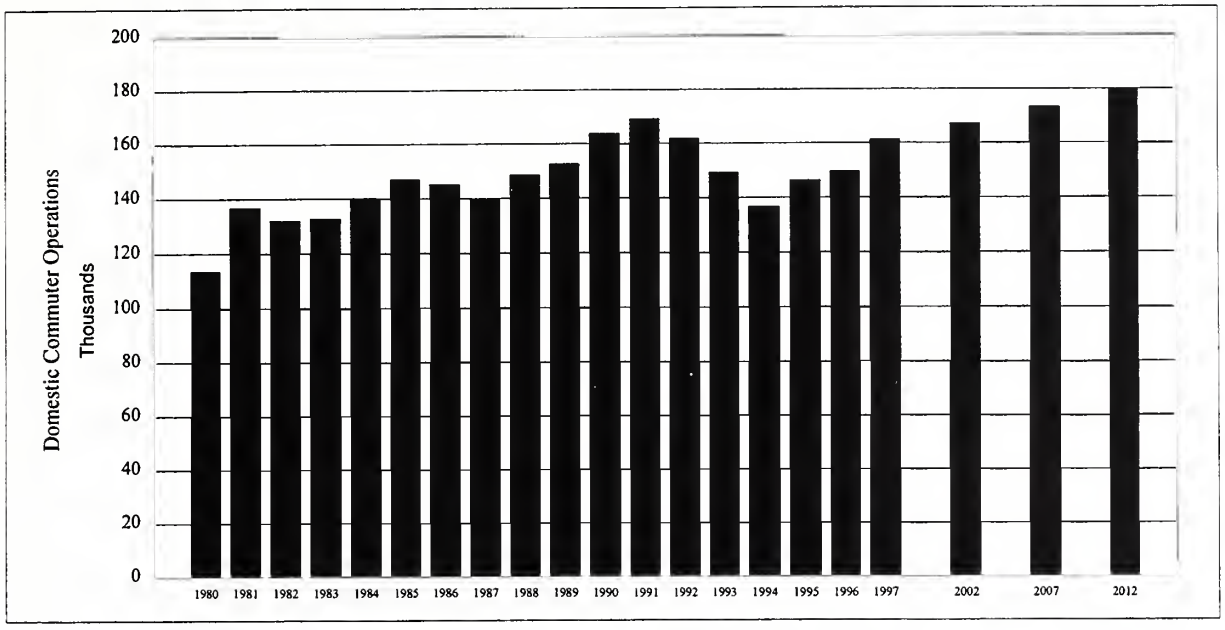
2. Midway

Domestic commuter operations increased from 1,153 in 1985 to 16,351 in 1997, an average annual increase of 24.7 percent (see **Table IX-4**). Domestic commuter operations peaked at 77,916 operations in 1990, the height of activity by Midway Airlines. Average scheduled seats per departure have remained relatively flat during the period, increasing from 17.7 in 1985 to 21.1 in 1997. The commuter carriers serving Midway have not introduced large turbo-prop aircraft and have added only a small number of regional jets to their Midway fleets during the period. Average load factors have increased dramatically during the period from 11.6 percent in 1985 to 44.5 percent in 1997.

The growth in domestic commuter enplanements per aircraft departure reflects the change in average load factor, increasing from 2.1 enplanements per departure in 1985 to 9.4 enplanements per departure in 1997. As shown in Table IX-4, commuter enplanements per departure are projected to show continued growth, increasing to 15.9 enplanements per departure by 2012.

The projected growth in commuter enplanements per departure will be driven by both increases in average seats per departure and average aircraft load factor. Average seats per commuter departure are forecast to increase to 28.9 by 2012, and average load factors are projected to increase to 55.0 percent in 2012.

Table IX-3
Chicago Airport System Forecast
Chicago-O'Hare International Airport
Domestic Commuter Operations Forecast



Domestic Commuter Activity

	Year	Average Seats Per Scheduled Departure	Load Factor	Average Enplanements Per Scheduled Departure	Domestic Commuter Enplanements	Domestic Commuter Departures	Domestic Commuter Operations
Actual	1980	25.2	35.4%	8.9	552,012	56,720	113,439
	1981	26.4	42.3%	11.2	734,077	68,405	136,809
	1982	29.9	48.9%	14.6	901,530	66,030	132,059
	1983	30.8	56.6%	17.4	1,163,209	66,432	132,864
	1984	33.7	61.2%	20.6	1,443,636	70,161	140,322
	1985	41.6	54.9%	22.8	1,540,418	73,555	147,110
	1986	44.2	47.8%	21.1	1,642,759	72,614	145,228
	1987	43.9	48.4%	21.3	1,573,832	69,993	139,985
	1988	43.7	51.1%	22.4	1,759,290	74,342	148,683
	1989	45.2	50.6%	22.9	1,941,966	76,409	152,817
	1990	46.1	52.0%	23.9	2,092,788	81,924	163,848
	1991	47.1	50.7%	23.8	2,144,578	84,585	169,170
	1992	51.1	53.9%	27.6	2,338,365	80,983	161,966
	1993	52.3	55.7%	29.1	2,286,609	74,648	149,296
	1994	54.0	54.6%	29.5	2,524,086	68,318	136,636
	1995	49.9	52.8%	26.4	2,347,024	73,220	146,440
	1996	50.0	55.2%	27.6	2,497,080	74,826	149,652
	1997	50.1	57.6%	28.9	2,536,345	80,659	161,318
Forecast	2002	51.8	59.1%	30.6	2,784,900	83,600	167,200
	2007	52.9	60.5%	32.0	3,021,700	86,700	173,400
	2012	54.0	62.0%	33.5	3,277,400	89,900	179,800
		Average Annual Compound Growth Rate					
	1980 - 1997	4.1%	2.9%	7.1%	9.4%	2.1%	2.1%
	1997 - 2002	0.7%	0.5%	1.2%	1.9%	0.7%	0.7%
	2002 - 2007	0.4%	0.5%	0.9%	1.6%	0.7%	0.7%
	2007 - 2012	0.4%	0.5%	0.9%	1.6%	0.7%	0.7%
	1997 - 2012	0.5%	0.5%	1.0%	1.7%	0.7%	0.7%

Sources: Actual - Department of Aviation records, Official Airline Guide; Forecast - Landrum & Brown, Inc.
Note: Detail may not add due to impact of non-scheduled Operations.
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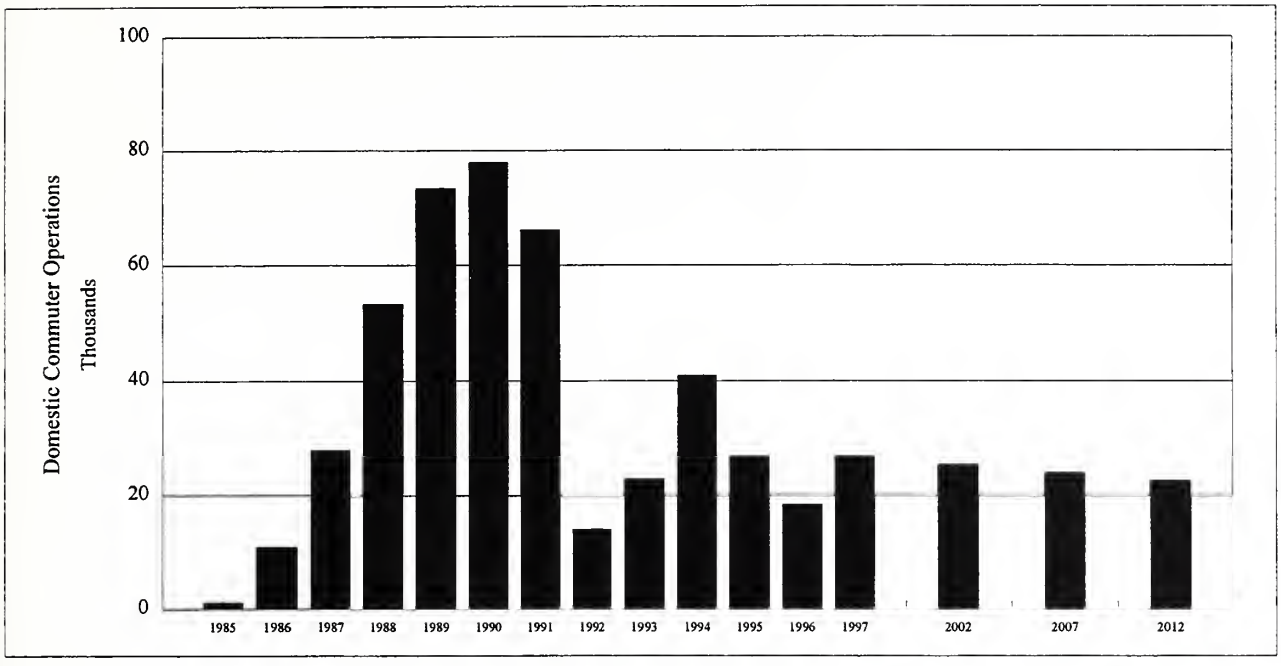
Table IX-4
Chicago Airport System Forecast
Chicago Midway Airport
Domestic Commuter Operations Forecast



Domestic Commuter Activity

	Year	Average Seats Per Scheduled eparture	Load Factor	Average Enplanements Per Scheduled Departure	Domestic Commuter Enplanements	Domestic Commuter Departures	Domestic Commuter Operations
Actual	1985	17.7	11.6%	2.1	2,573	577	1,153
	1986	36.2	26.5%	9.6	53,789	5,491	10,982
	1987	19.1	27.6%	5.3	109,270	13,959	27,917
	1988	19.7	41.2%	8.1	242,814	26,651	53,302
	1989	20.0	44.2%	8.8	343,036	36,676	73,352
	1990	21.1	44.0%	9.3	396,074	38,958	77,916
	1991	21.1	38.8%	8.2	325,402	33,063	66,125
	1992	19.9	40.0%	8.0	69,164	7,054	14,107
	1993	24.6	29.6%	7.3	99,903	11,426	22,851
	1994	22.9	34.1%	7.8	184,313	20,512	41,023
	1995	21.7	31.1%	6.8	114,994	13,439	26,878
	1996	22.8	32.4%	7.4	82,806	9,252	18,504
	1997	21.1	44.5%	9.4	82,989	13,439	26,878
Forecast	2002	23.4	47.8%	11.2	93,400	12,700	25,400
	2007	26.0	51.2%	13.3	105,000	12,000	24,000
	2012	28.9	55.0%	15.9	118,000	11,300	22,600
				Average Annual Compound Growth Rate			
	1985 - 1997	1.5%	11.8%	13.5%	33.6%	30.0%	30.0%
	1997 - 2002	2.1%	1.4%	3.6%	2.4%	-1.1%	-1.1%
	2002 - 2007	2.1%	1.4%	3.6%	2.4%	-1.1%	-1.1%
	2007 - 2012	2.1%	1.4%	3.6%	2.4%	-1.2%	-1.2%
	1997 - 2012	2.1%	1.4%	3.6%	2.4%	-1.1%	-1.1%

Sources: Actual - Department of Aviation records, Official Airline Guide; Forecast - Landrum & Brown, Inc.
Note: Detail may not add due to impact of non-scheduled Operations.
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The resulting forecast of domestic commuter aircraft operations projects a decrease from 16,351 operations in 1997 to 13,800 operations in 2012. This represents an average annual decrease of 1.1 percent over the forecast period, which reflects the higher utilization of regional jets at Midway and accompanying projected increases in load factor.

C. INTERNATIONAL AIRCRAFT OPERATIONS

The international aircraft operations for O'Hare and Midway are projected separately for O'Hare and Midway because of differing assumptions for each airport. As previously explained, Canadian and non-Canadian international operations are forecast separately for O'Hare.

1. O'Hare

a. Non-Canadian International

Non-Canadian international aircraft operations have increased from 17,920 operations in 1986 to 38,058 operations in 1997, as shown in **Table IX-5.** The steady growth of non-Canadian international activity, averaging over 7.0 percent annually, is expected to continue throughout the forecast period, as discussed in Chapter VII. Average scheduled seats per departure, 244.7 in 1986, declined to 221.0 in 1991, before returning to 244.8 in 1997. International enplanements per departure have shown erratic growth, from 156.5 enplanements per departure in 1986 to 180.0 enplanements per departure in 1997. Average load factors increased during this period from 64.0 percent in 1986 to 73.5 percent in 1997, averaging over 70.0 percent since 1994.

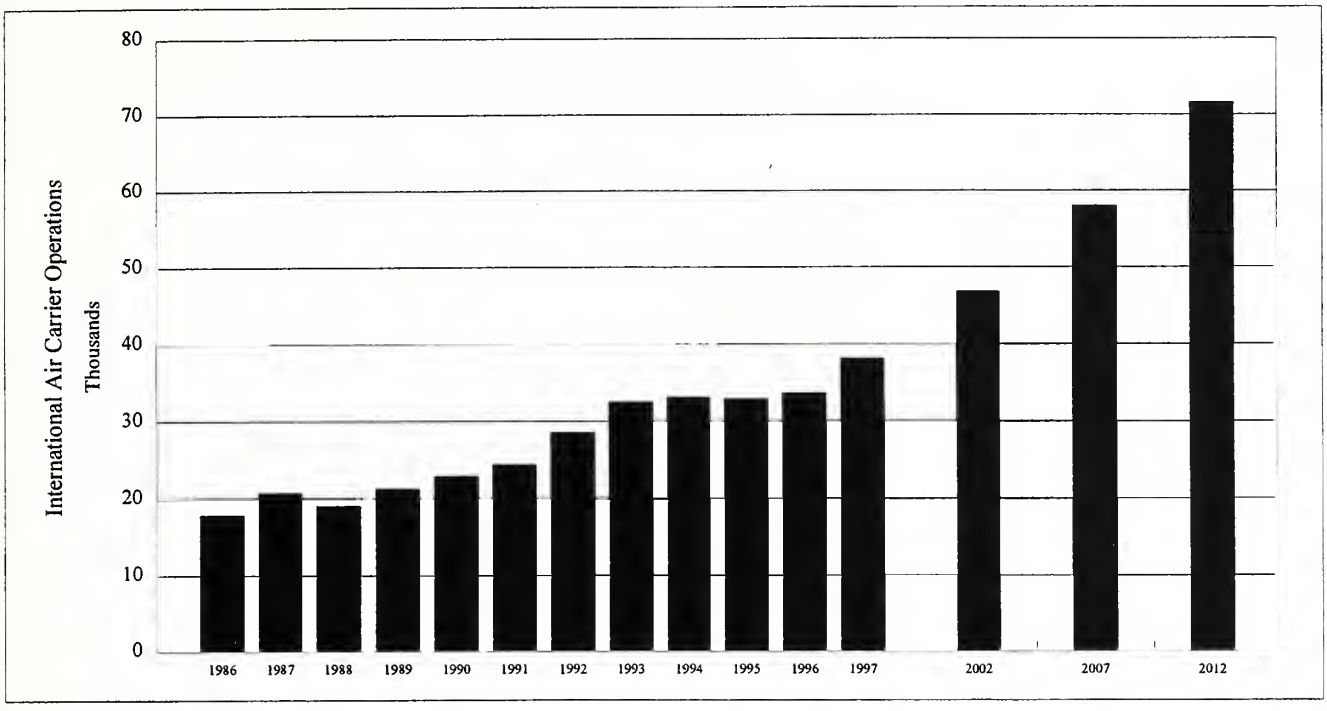
The forecast of international air carrier operations is driven by projections of international air carrier enplanements per departure, based on the relation of the average number of seats per aircraft departure to the average aircraft load factor. The growth trend of enplanements per departure is projected to continue through the forecast period, increasing to 204.4 enplanements per departure in 2012. This average enplanement per departure projection results from the forecast 269 average seats per departure and the projected 76 percent average load factor.

The foregoing assumptions result in non-Canadian international air carrier operations increasing from 38,058 operations in 1997 to 71,600 operations in 2012, an average annual growth rate of 4.3 percent.

b. Canadian International

Canadian international aircraft operations have increased from 13,816 operations in 1986 to 28,500 operations in 1997, as shown in **Table IX-6.** Average scheduled seats per departure, 150 in 1986, declined markedly to 116 in 1996 and 1997, reflecting the carriers' decision to reduce their fleets and offer increased frequencies to Canadian destinations. Canadian enplanements per departure declined from the peak of 83.9 in 1986 to 76.0 in 1997, a further reflection of the reduction of the Canadian fleet. Average load factors ranged from a low of 54.3 percent in 1992 to a high of 68.2 percent in 1989, averaging 65.5 percent in 1997.

Table IX-5
Chicago Airport System Forecast
Chicago-O'Hare International Airport
International (excluding Canada) Operations Forecast



International (Excluding Canada) Air Carrier Activity

	Year	Average Seats Per Scheduled Departure	Load Factor	Average Enplanements Per Scheduled Departure	International Air Carrier Enplanements	International Air Carrier Departures	International Air Carrier Operations
Actual	1986	244.7	64.0%	156.5	1,108,817	8,960	17,920
	1987	235.2	61.0%	143.4	1,226,317	10,360	20,719
	1988	237.9	64.6%	153.8	1,281,701	9,547	19,094
	1989	233.7	63.1%	147.5	1,354,235	10,643	21,286
	1990	221.5	64.4%	142.7	1,575,810	11,462	22,923
	1991	221.0	59.8%	132.2	1,568,261	12,191	24,382
	1992	222.4	61.1%	135.8	1,817,611	14,265	28,530
	1993	225.6	63.0%	142.2	2,030,030	16,210	32,420
	1994	223.3	71.5%	159.6	2,192,094	16,522	33,044
	1995	229.7	75.4%	173.1	2,374,778	16,422	32,844
	1996	239.3	75.5%	180.7	2,551,487	16,803	33,607
	1997	244.8	73.5%	180.0	2,788,690	19,029	38,058
	2002	254.2	74.3%	189.0	3,595,000	23,400	46,800
	2007	264.0	75.2%	198.4	4,689,000	29,000	58,000
	2012	269.0	76.0%	204.4	5,964,000	35,800	71,600
		Average Annual Compound Growth Rate					
	1986 - 1997	0.0%	1.3%	1.3%	8.7%	7.1%	7.1%
	1997 - 2002	0.8%	0.2%	1.0%	5.2%	4.2%	4.2%
	2002 - 2007	0.8%	0.2%	1.0%	5.5%	4.4%	4.4%
	2007 - 2012	0.4%	0.2%	0.6%	4.9%	4.3%	4.3%
	1997 - 2012	0.6%	0.2%	0.9%	5.2%	4.3%	4.3%

Sources: Actual - Department of Aviation records, Official Airline Guide; Forecast - Landrum & Brown, Inc.
Note: Detail may not add due to impact of non-scheduled Operations.
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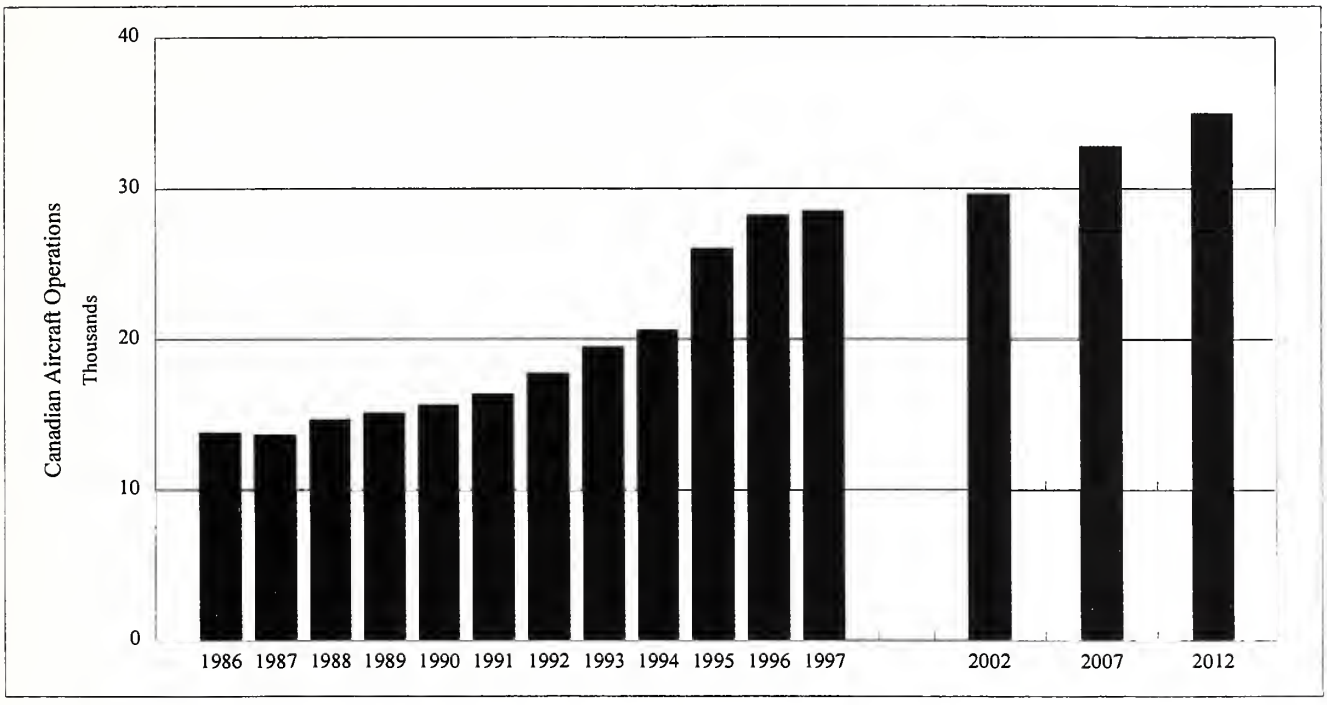
Table IX-6
Chicago Airport System Forecast
Chicago-O'Hare International Airport
Canadian Operations Forecast



Canadian Activity

	Year	Average Seats Per Scheduled Departure	Load Factor	Average Enplanements Per Scheduled Departure	Canadian Enplanements	Canadian Departures	Canadian Operations
Actual	1986	150.0	55.9%	83.9	591,456	6,908	13,816
	1987	164.0	64.3%	105.6	734,967	6,824	13,647
	1988	157.5	62.2%	97.9	732,048	7,331	14,661
	1989	150.0	68.2%	102.4	788,363	7,546	15,092
	1990	145.6	64.1%	93.3	716,561	7,812	15,624
	1991	148.1	58.4%	86.5	699,131	8,170	16,340
	1992	149.7	54.3%	81.3	717,778	8,869	17,738
	1993	153.7	57.2%	87.9	859,697	9,751	19,502
	1994	135.5	60.6%	82.2	848,683	10,300	20,600
	1995	123.6	56.4%	69.7	923,602	12,995	25,990
	1996	116.0	58.6%	67.9	977,714	14,103	28,206
	1997	116.0	65.5%	76.0	1,103,839	14,250	28,500
Forecast	2002	117.5	66.3%	77.9	1,172,000	14,800	29,600
	2007	120.0	67.1%	80.6	1,345,000	16,400	32,800
	2012	125.0	68.0%	85.0	1,518,000	17,500	35,000
		Average Annual Compound Growth Rate					
	1986 - 1997	-2.3%	1.4%	-0.9%	5.8%	6.8%	6.8%
	1997 - 2002	0.2%	0.3%	0.5%	1.2%	0.8%	0.8%
	2002 - 2007	0.4%	0.3%	0.7%	2.8%	2.1%	2.1%
	2007 - 2012	0.8%	0.3%	1.1%	2.4%	1.3%	1.3%
	1997 - 2012	0.5%	0.3%	0.8%	2.1%	1.4%	1.4%

Sources: Actual - Department of Aviation records, Official Airline Guide; Forecast - Landrum & Brown, Inc.
Note: Detail may not add due to impact of non-scheduled Operations.
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The forecast of Canadian air carrier operations is a function of the Canadian enplanement forecast and average enplanements per departure. Enplanements per departure are projected to increase during the forecast period to 85.0 enplanements per departure in 2012. This average enplanement per departure projection results from the forecast 125 average seats per departure and the projected 68 percent average load factor.

The foregoing assumptions result in Canadian international air carrier operations increasing from 28,500 operations in 1997 to 35,000 operations in 2012, an average annual growth rate of 1.4 percent.

2. Midway

Scheduled international activity has not been sustainable at Midway. Several attempts have been made in recent years but, in each case, the service was canceled. The historical activity presented in **Table IX-7** includes a combination of scheduled, charter and general aviation international enplanements and operations.

The international activity forecast assumes limited scheduled or charter operations on B757-sized aircraft to Caribbean or Mexican destinations with an average load factor of 55 percent. By 2012, average international seats per departure will be 216, with 118.8 average enplanements per departure.

D. ALL-CARGO OPERATIONS

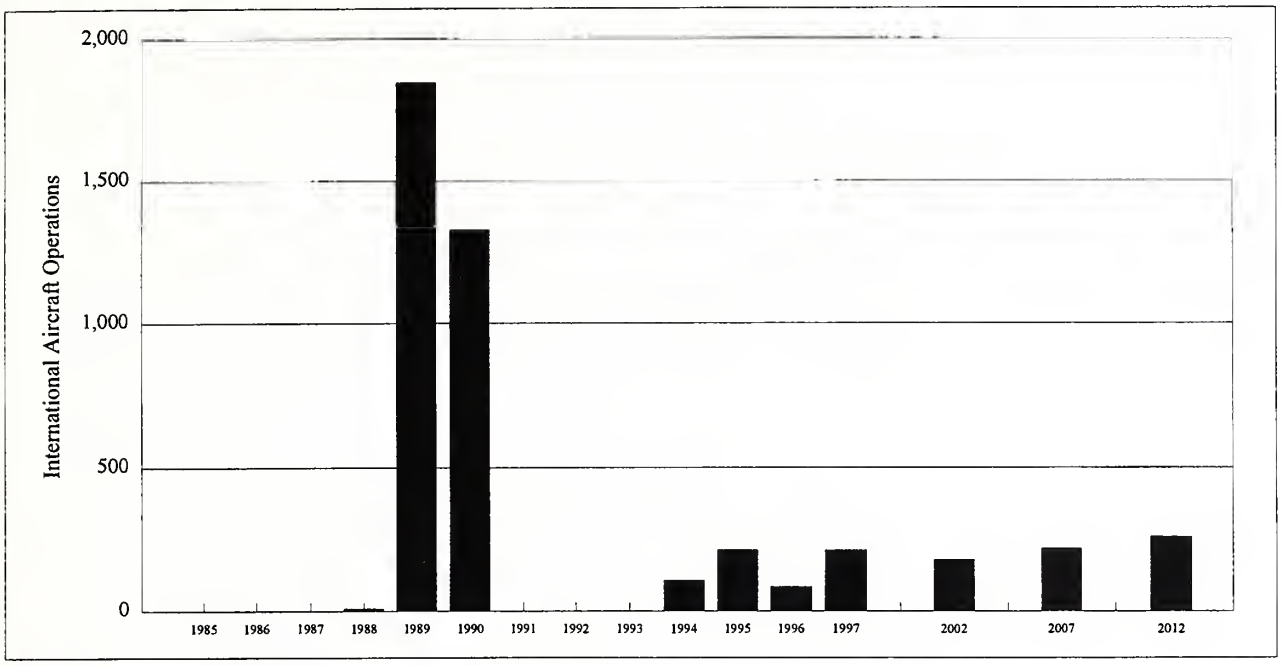
A multi-step process was designed to project the level of all-freighter operations over the forecast period. Some of the methodology used in conventional passenger operations forecasts was applied to the air cargo forecast; namely, proxy variables of aircraft gauge (i.e., payload capacity) and aircraft load factors (i.e., payload factor) were developed. These proxy variables were then applied against the forecast of tonnage to determine the forecast of total cargo operations.

1. Payload And Payload Factor Sampling And Estimation

Air cargo industry analysts have far less statistical data than their passenger industry counterparts. There are no vendor sources of air cargo loads (i.e., demand) or available seats (i.e., supply). Demand and supply or equivalent variables must be sampled, estimated and extrapolated.

For the air cargo component of this forecast, average payloads (i.e., seats per aircraft) and payload factors (i.e., passenger load factors) were estimated. For both O'Hare and Midway, a baseline freighter fleet mix was culled from a DOA activity statistics sample. All carriers operating freighter aircraft were included, as were airlines that operate both passenger and freighter aircraft such as Lufthansa, Northwest, AerLingus, Japan Airlines and several others. The express/integrated carriers like FedEx and UPS typically operate several different gauges of aircraft. In these cases, a blended payload factor was estimated given that carrier's fleet mix.

Table IX-7
Chicago Airport System Forecast
Chicago Midway Airport
International Operations Forecast



International Operations Activity

	Year	Average Seats Per Scheduled eparture	Load Factor	Average Enplanements Per Scheduled Departure	International Enplanements	International Departures	International Operations
Actual	1985	n/a	n/a	n/a	0	0	0
	1986	n/a	n/a	n/a	0	0	0
	1987	n/a	n/a	n/a	0	0	0
	1988	n/a	n/a	n/a	811	5	10
	1989	112.0	34.3%	38.4	33,051	923	1,846
	1990	112.0	28.3%	31.7	23,005	664	1,328
	1991	n/a	n/a	n/a	0	0	0
	1992	n/a	n/a	n/a	0	0	0
	1993	n/a	n/a	n/a	0	0	0
	1994	168.0	55.1%	92.6	6,018	55	109
	1995	202.6	61.5%	124.6	12,959	107	214
	1996	207.1	52.7%	109.2	4,696	43	86
	1997	n/a	n/a	n/a	0	107	214
Forecast	2002	216.0	55.0%	118.8	11,000	90	180
	2007	216.0	55.0%	118.8	13,500	110	220
	2012	216.0	55.0%	118.8	16,000	130	260
		Average Annual Compound Growth Rate					
	1985 - 1997	n/a	n/a	n/a	n/a	n/a	n/a
	1997 - 2002	n/a	n/a	n/a	n/a	-0.0%	-0.0%
	2002 - 2007	0.0%	0.0%	0.0%	4.2%	4.1%	4.1%
	2007 - 2012	0.0%	0.0%	0.0%	3.5%	3.4%	3.4%
	1997 - 2012	n/a	n/a	n/a	n/a	1.3%	1.3%

Sources: Actual - Department of Aviation records, Official Airline Guide; Forecast - Landrum & Brown, Inc.
Note: Detail may not add due to impact of non-scheduled Operations.
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Payload is defined as the aircraft manufacturer's published maximum gross payload (MGP):

Payload = Aircraft Type x MGP

Payload factor is the annualization of total payload (i.e., "lift") against the carrier's total reported tonnage or by equation:

Payload Factor = Annual Tons/Annual MGP

Payload factors were calculated for all freighter operators by market sector (i.e., domestic express and international freight carriers). International freighter operators were further divided into trans-Atlantic and trans-Pacific markets based on the aircraft operators' known or assumed itineraries. For example, Lufthansa is exclusively a trans-Atlantic operation; Polar Air was assumed to be a trans-Pacific operator given its route network and typical itineraries.

Payload factors, however, cannot always be used in the equation to forecast air cargo operations. MGP is the heaviest weight an aircraft can carry; however, freighter aircraft rarely achieve MGP because of the difference between cubic area consumed and available payload weight. The cubic area of a freighter is consumed by containers, pallets or freight before the MGP is met. Therefore, a Cubic/Weight Factor (CWF) is assigned to both the domestic express and international freight operations to account for this operational function. Domestic express operations have a CWF in the range of 50 percent, and international freight operations generally have a CWF in range of 30 percent. By assigning a CWF, an adjusted payload factor is calculated:

Adjusted Payload Factor = MGP x CWF

The payload and adjusted payload factors are extrapolated over the forecast period in much the same way that a load factor assumption is projected for a passenger operations forecast. The extrapolation of the payload factor must be reasonable and based on some expectation of how the gauge of freighter aircraft will change in the future.

2. Fleet Mix And Gauge Assumptions

A freighter fleet sampling was taken from the Chicago Region to determine the mix of narrowbody and widebody freighters serving both O'Hare and Midway. Each major freighter operator's fleet orders were consulted, as were airframe manufacturers' gauge forecasts. Presented here are the gauge assumptions derived and entered into the air cargo operations forecast model.

a. O'Hare

Domestic Freighters - The domestic freighter operators at O'Hare deploy widebody aircraft. A sample fleet profile shows the fleet mix by widebody operations (WB) and narrowbody operations (NB) for the major integrated carriers that handled most of domestic freight and express volumes:

Table IX-8
Chicago Airport System Forecast
Fleet Mix of Cargo Carriers at O'Hare

Airline	Percentage WB*	Percentage NB*
FedEx	60%	40%
UPS	80	20
Emery	90	10
Airborne	60	40
Unweighted Average	72.5%	27.5%

Source: DOA Statistics
** Ratios are rounded*

The size of the Chicago Region market, coupled with existing slot constraints, suggests that carriers will gradually begin to use larger aircraft in the domestic freighter market. This increase in gauge is reflected in the forecast model.

- **International Freighters** - O'Hare's impressive growth in international freight has been driven largely by the growth in the trans-Pacific air cargo market. Cargo in both the trans-Pacific and trans-Atlantic markets is carried entirely on widebody aircraft. With the exception of several medium widebody aircraft (i.e., DC-8s) operating internationally at O'Hare, nearly all international operations activity is in the large widebody family of aircraft, namely the entire family of B-747 freighters. Increased gauge will take place as B-747-100 freighter series aircraft are replaced by newer, higher payload aircraft and as additional trans-Pacific operators serve O'Hare with large widebody aircraft. Boeing predicts that by 2006, approximately 28 percent of the world's freighters will be large widebody variants, up from about 20 percent in 1995.

b. Midway

- **Domestic Freighters** - As an airport designed for narrowbody aircraft with a single domestic freighter operator, Midway's freighter gauge is not expected to change over the forecast period. Airborne's DC-9F is operating at or about one-third its payload capacity, which can comfortably handle projected future tonnage. If a new entrant freighter operator were to inaugurate service at Midway, it likely would deploy a similar narrowbody gauge.

- **Other** - Nearly one-half of the reported domestic freight at Midway is on non-scheduled and non-commercial aircraft handled by the fixed-based operators. No reliable operations fleet mix data is available for this segment of air cargo operations; however, the DOA and the FAA count these operations as general aviation movements. No independent operations forecast was performed; therefore, the general aviation operations forecast for Midway includes these operations.

3. Forecast Results

The forecast of freighter operations is a quantitative blend of several components, including the forecast of tonnage and payload factors, which are largely determined by existing and future freighter fleet orders and options, and an airport's air cargo markets. Once the freighter operations forecast is derived, it is tested for its reasonableness against past performance and industry expectations. The freighter operations forecasts for O'Hare and Midway are presented in **Tables IX-9** and **IX-10**, respectively, and are summarized here.

a. O'Hare

- **Domestic Freighters** - The forecast of domestic freighters is largely affected by the strong growth projected for the integrated carriers (i.e., FedEx, UPS). Since 1991, domestic freighter operations have grown at just over 5 percent per annum. Impressive growth in these operations is forecast to continue at 4.2 percent in the short term. Over the long term, domestic freighter activity will average approximately 2.3 percent growth per annum, well above the corresponding passenger operations forecast.

- **International Freighters** - International freighter operations have nearly doubled since 1993 as more liberal bilateral agreements and coastal gateway overflights have "opened" O'Hare to additional freighter operations. International freighter operations are projected to expand by approximately 15 percent per annum through 2000. The long-term average annual compound growth rate is forecast at 5.6 percent. Although these rates appear exceedingly high at first glance, a 15 percent annual increase in international freighter operations roughly equates to one additional daily operation.

b. Chicago Midway Airport

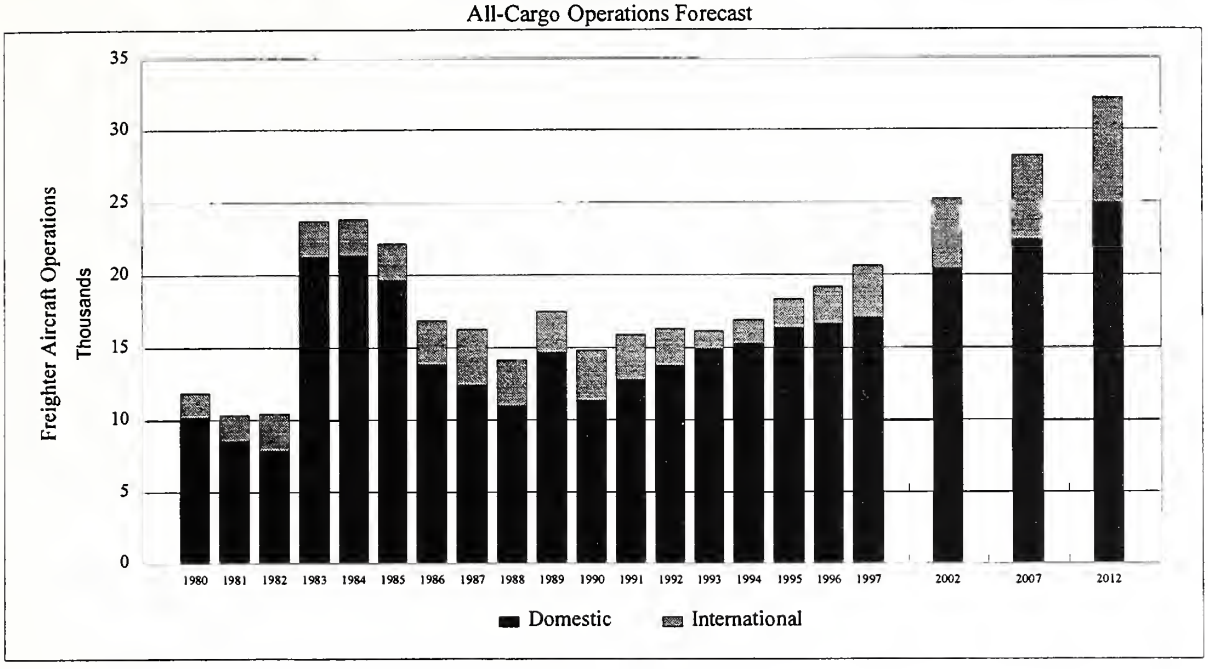
- **Domestic Freighters** - A modest increase in freighter operations is forecast for Midway. Aircraft operating and facility constraints discourage significant expansion, even by the sole incumbent express carrier, Airborne Express. The short- and long-term forecast of operations is at or below 1 percent per annum at Midway.

- **Other** - The reported non-scheduled, general aviation operations handling air cargo at Midway are included in the Midway forecast of general aviation operations.

E. MILITARY AIRCRAFT OPERATIONS

The following sections present the projected aircraft operations separately for O'Hare and Midway because of differing assumptions for each airport.

Table IX-9
Chicago Airport System Forecast
Chicago-O'Hare International Airport
All-Cargo Operations Forecast



All-Cargo Operations Activity

	Year	Domestic Freighter Operations	International Freighter Operations	Total Freighter Operations
Actual	1980	10,190	1,714	11,904
	1981	8,527	1,846	10,373
	1982	7,880	2,570	10,450
	1983	21,237	2,500	23,737
	1984	21,318	2,526	23,844
	1985	19,657	2,508	22,165
	1986	13,840	3,041	16,881
	1987	12,437	3,851	16,288
	1988	10,964	3,213	14,177
	1989	14,657	2,840	17,497
	1990	11,318	3,522	14,840
	1991	12,802	3,107	15,909
	1992	13,732	2,592	16,324
	1993	14,882	1,285	16,167
	1994	15,281	1,644	16,925
	1995	16,339	1,999	18,338
	1996	16,641	2,543	19,184
	1997	17,032	3,598	20,630
Forecast	2002	20,400	4,800	25,200
	2007	22,400	5,800	28,200
	2012	24,900	7,300	32,200
		Average Annual Compound Growth Rate		
	1980 - 1997	3.1%	4.5%	3.3%
	1997 - 2002	3.7%	5.9%	4.1%
	2002 - 2007	1.9%	3.9%	2.3%
	2007 - 2012	2.1%	4.7%	2.7%
	1997 - 2012	2.6%	4.8%	3.0%

Sources: Actual - Department of Aviation Management Records, Official Airline Guide; Forecast - Landrum & Brown, Inc.
Note: Detail may not add due to impact of non-scheduled Operations.
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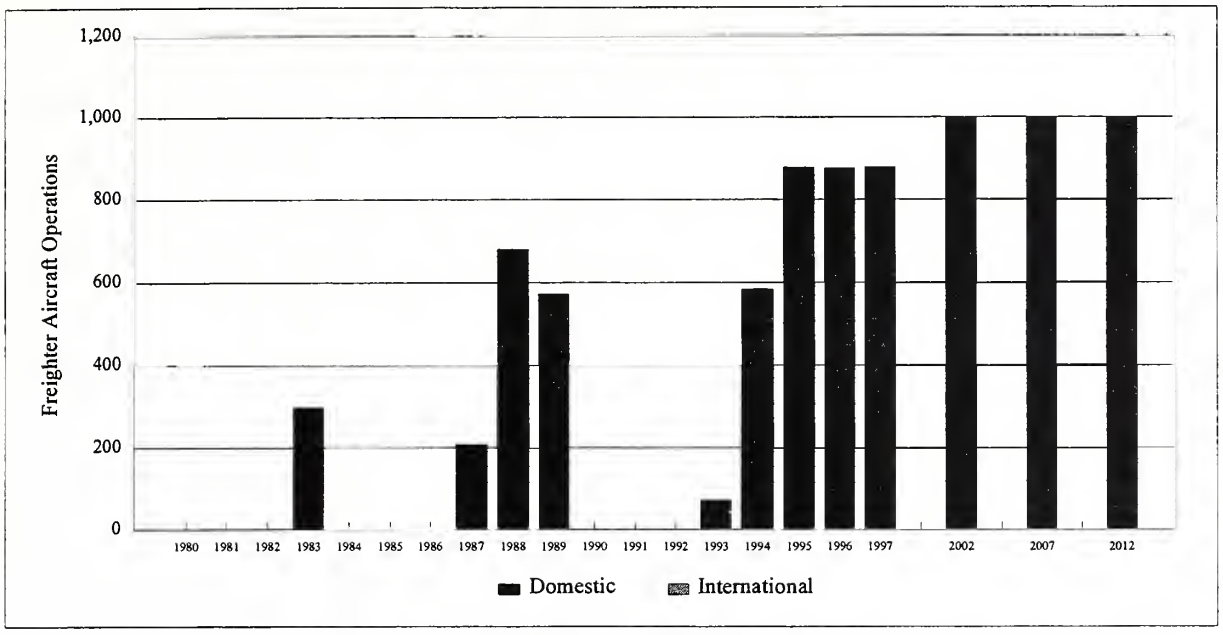
Table IX-10
Chicago Airport System Forecast
Chicago Midway Airport
All-Cargo Operations Forecast



All-Cargo Operations Activity

	Year	Domestic Freighter Operations	International Freighter Operations	Total Freighter Operations
Actual	1980	0	0	0
	1981	0	0	0
	1982	0	0	0
	1983	298	0	298
	1984	0	0	0
	1985	0	0	0
	1986	0	0	0
	1987	208	0	208
	1988	680	0	680
	1989	572	0	572
	1990	0	0	0
	1991	0	0	0
	1992	0	0	0
	1993	72	0	72
	1994	584	0	584
	1995	878	0	878
	1996	876	0	876
	1997	878	0	878
Forecast	2002	1,000	0	1,000
	2007	1,000	0	1,000
	2012	1,000	0	1,000
		Average Annual Compound Growth Rate		
	1980 - 1997	n/a	n/a	n/a
	1997 - 2002	2.6%	n/a	2.6%
	2002 - 2007	0.0%	n/a	0.0%
	2007 - 2012	0.0%	n/a	0.0%
	1997 - 2012	0.9%	n/a	0.9%

Sources: Actual - Department of Aviation records, Official Airline Guide; Forecast - Landrum & Brown, Inc.
Note: Detail may not add due to impact of non-scheduled Operations.
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1. O'Hare

Historical military operations at O'Hare for the period 1980 through 1997 are shown in **Table IX-11.** Between 1980 and 1995, military operations were relatively flat, and represented less than one percent of total operations. In 1996 and 1997, military operations declined because the Air National Guard was decommissioned. The Army and Air Force units will be transitioned from their bases at O'Hare to Scott and Arlington Heights, respectively.

The current military site is expected to be turned over to the City for other aviation purposes in 2001. Military operations are forecast at an annual level of 200 operations for the balance of the forecast period.

2. Midway

Historical military operations at Midway from 1980 through 1997 are shown in **Table IX-12.** Military operations at Midway declined during the 1980s and early 1990s from a peak of 13,598 in 1981 (6.6 percent of total operations) to 1,298 in 1997 (0.5 percent of total operations). Military operations are forecast at an annual level of 1,900 operations for the balance of the forecast period, slightly above the average activity over the last three years, but remaining at less than one percent of total operations.

F. GENERAL AVIATION AIRCRAFT OPERATIONS

The general aviation aircraft operations for O'Hare and Midway are projected separately for O'Hare and Midway because of differing assumptions for each airport. Historical general aviation operations data for both O'Hare and Midway is taken from DOA records, which are based upon activity reports from the fixed base operator and the FAA control tower. The general aviation category includes all non-commercial activity except military: corporate, private, and helicopter.

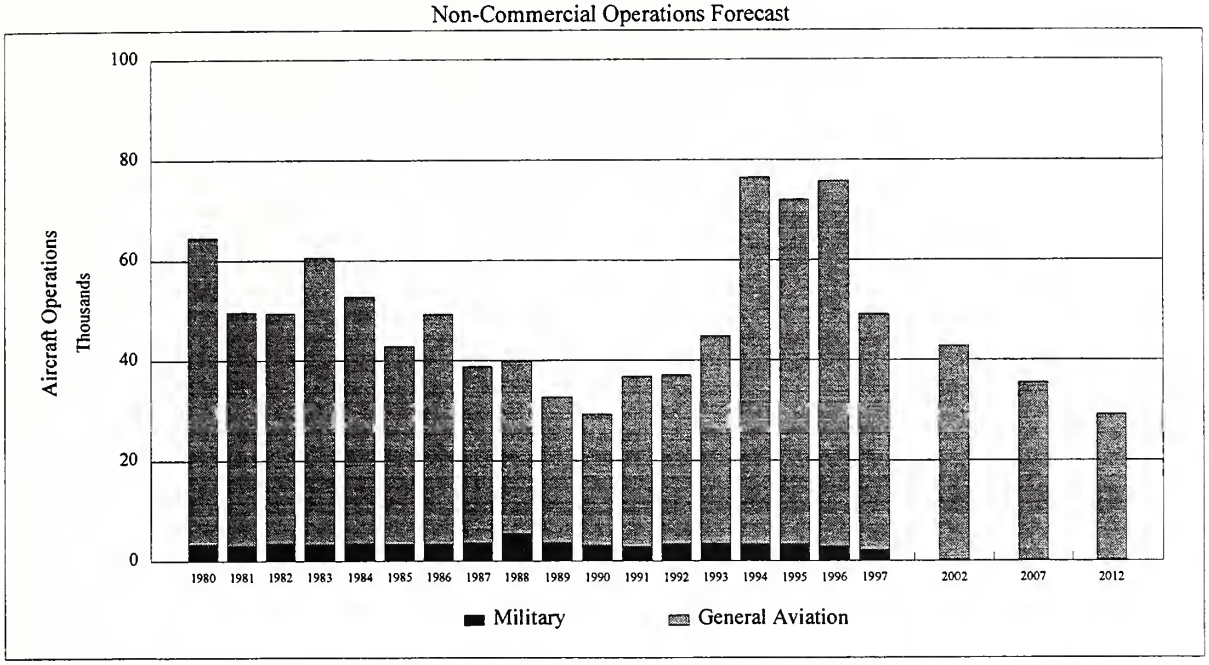
1. O'Hare

Overall, general aviation operations activity at O'Hare reflected a declining trend from 1980 (8.5 percent of total operations) to 1990 (3.2 percent of total operations) before rising sharply in 1994. Reported general aviation operations dropped in 1997 to pre-1994 levels (5.3 percent of total operations). General aviation activity is projected to decrease at an average rate of 3.2 percent per year, reaching 28,900 operations in 2012 (see Table IX-11), or 2.9 percent of total operations. This forecast decline assumes the dispersion of general aviation operations to less busy, non-commercial airports in the region.

2. Midway

General aviation operations activity at Midway declined from 1980 (88.0 percent of total operations) to 1993 before increasing to 130,551 operations in 1997 (49.2 percent of total operations). General aviation activity is projected to decrease at an average rate of 1.1 percent per year to a level of 110,000 operations in 2012 (see Table IX-12), or 34.9 percent of total operations. This forecast mirrors the FAA's projection for itinerant general aviation activity at Midway.

Table IX-11
Chicago Airport System Forecast
Chicago-O'Hare International Airport
Non-Commercial Operations Forecast



Non-Commercial Operations Activity

	Year	Military Operations	Percent of Total Operations	General Aviation Operations	Percent of Total Operations	Total on-Commercial Operations
Actual	1980	3,368	0.5%	61,203	8.5%	64,571
	1981	3,013	0.5%	46,633	7.2%	49,646
	1982	3,466	0.6%	45,959	7.6%	49,425
	1983	3,288	0.5%	57,360	8.6%	60,648
	1984	3,550	0.5%	49,207	6.7%	52,757
	1985	3,454	0.5%	39,305	5.2%	42,759
	1986	3,406	0.4%	45,843	5.8%	49,249
	1987	3,729	0.5%	35,083	4.4%	38,812
	1988	5,478	0.7%	34,302	4.3%	39,780
	1989	3,700	0.5%	28,962	3.7%	32,662
	1990	3,124	0.4%	26,193	3.2%	29,317
	1991	2,827	0.3%	33,969	4.2%	36,796
	1992	3,418	0.4%	33,684	4.0%	37,102
	1993	3,475	0.4%	41,365	4.8%	44,840
	1994	3,327	0.4%	73,199	8.3%	76,526
	1995	3,288	0.4%	68,819	7.6%	72,107
	1996	2,938	0.3%	72,834	8.0%	75,772
	1997	2,170	0.2%	47,023	5.3%	49,193
Forecast	2002	200	0.0%	42,600	4.6%	42,800
	2007	200	0.0%	35,300	3.7%	35,500
	2012	200	0.0%	28,900	2.9%	29,100
		Average Annual Compuund Growth Rate				
	1980 - 1997	-2.6%	-3.7%	-1.5%	-2.7%	-1.6%
	1997 - 2002	-37.9%	-38.4%	-2.0%	-2.7%	-2.7%
	2002 - 2007	0.0%	-0.6%	-3.7%	-4.3%	-3.7%
	2007 - 2012	0.0%	-0.7%	-3.9%	-4.6%	-3.9%
	1997 - 2012	-14.7%	-15.3%	-3.2%	-3.9%	-3.4%

Sources: Actual - Department of Aviation Management Records; Forecast - Landrum & Brown, Inc.
Note: General Aviation includes helicopters and miscellaneous.
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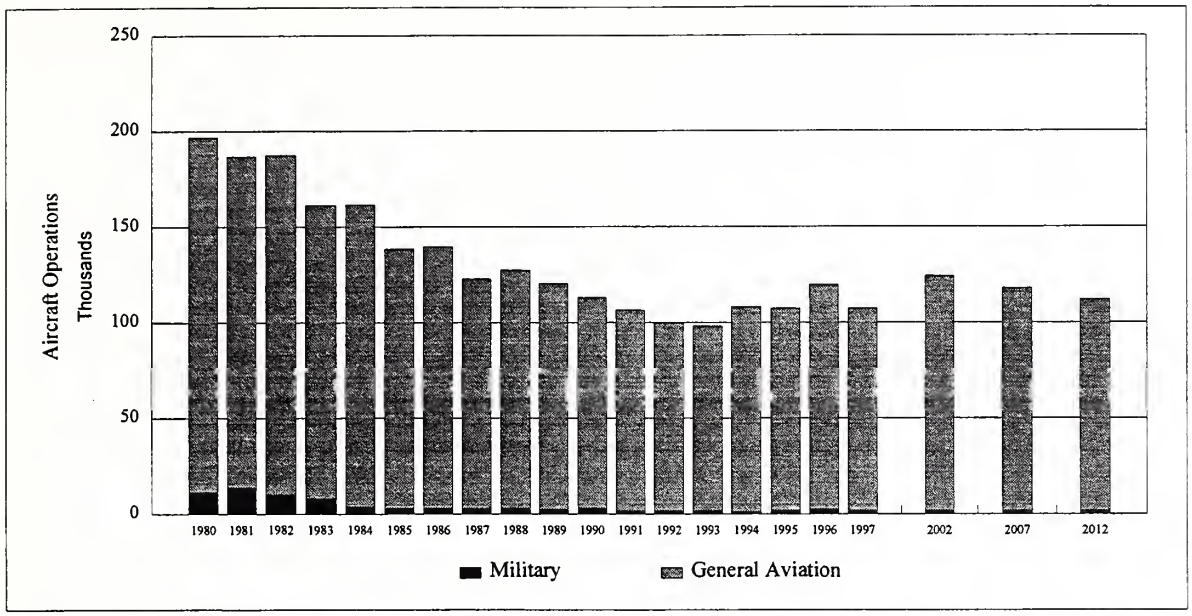
Table IX-12
Chicago Airport System Forecast
Chicago Midway Airport
Non-Commercial Operations Forecast



Non-Commercial Operations Activity

	Year	Military Operations	Percent of Total Operations	General Aviation Operations	Percent of Total Operations	Total Non-Commercial Operations
Actual	1980	11,385	5.4%	185,558	88.0%	196,943
	1981	13,598	6.6%	173,286	83.9%	186,884
	1982	9,903	4.6%	177,705	82.0%	187,608
	1983	7,996	3.8%	153,305	72.6%	161,301
	1984	3,597	1.8%	157,992	77.1%	161,589
	1985	2,993	1.6%	135,471	72.0%	138,464
	1986	2,872	1.4%	136,870	64.6%	139,742
	1987	2,650	1.1%	120,144	49.5%	122,794
	1988	2,865	0.9%	124,517	39.8%	127,382
	1989	2,426	0.8%	117,928	36.8%	120,354
	1990	2,928	0.9%	110,088	34.6%	113,016
	1991	1,394	0.5%	105,137	37.5%	106,531
	1992	1,466	0.8%	98,350	55.8%	99,816
	1993	1,461	0.7%	96,653	48.0%	98,114
	1994	906	0.3%	107,170	39.5%	108,076
	1995	1,560	0.6%	105,664	41.1%	107,224
	1996	2,388	0.9%	117,286	45.9%	119,674
	1997	1,560	0.6%	105,664	41.1%	107,224
Forecast	2002	1,900	0.6%	122,400	40.3%	124,300
	2007	1,900	0.6%	116,000	36.5%	117,900
	2012	1,900	0.6%	110,000	33.0%	111,900
		Average Annual Compound Growth Rate				
	1980 - 1997	-11.0%	-12.1%	-3.3%	-4.4%	-3.5%
	1997 - 2002	4.0%	0.6%	3.0%	-0.4%	3.0%
	2002 - 2007	0.0%	-0.9%	-1.1%	-2.0%	-1.1%
	2007 - 2012	0.0%	-0.9%	-1.1%	-2.0%	-1.0%
	1997 - 2012	1.3%	-0.4%	0.3%	-1.4%	0.3%

Sources: Actual - Department of Aviation records, Official Airline Guide; Forecast - Landrum & Brown, Inc.
Note: General Aviation includes helicopters and miscellaneous.
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G. AVERAGE LOAD FACTORS

Average annual load factors for each category of commercial passenger operations have been increasing, on average, for many years. As shown in **Table IX-13**, average load factors for domestic air carrier and commuters at O'Hare are at their highest levels of the last 10 years. In the past, when load factors reached then-record levels, the airlines responded by adding frequencies to spread the demand among more flights and utilizing larger aircraft, when available. This was particularly evident with the non-Canadian international operations in 1995. The carriers responded by increasing the average aircraft gauge by almost 10 seats in a period of only one year. Average aircraft size increased again in 1997 by more than five seats, allowing load factors to drop slightly, while maintaining the average number of enplanements at 180.

Record-high passenger demand has caused load factors to reach levels that were viewed historically as being unsustainable. Load factors at O'Hare are forecast to increase slightly during the forecast period. Continued high passenger demand, coupled with the improved yield management systems being employed by the major airlines, will allow these load factors to be sustained at the forecast levels. Historical and forecast load factors for O'Hare are shown on Table IX-13.

Load factors at Midway have been more erratic, but the general trend is the same as that experienced at O'Hare. Domestic air carrier load factors are forecast to increase at 0.5 percent per year through 2012, reaching 63.0 percent. Commuter load factors, which were only 26.5 percent in 1986, increased more than 12 percent between 1996 and 1997, from 32.4 percent to 44.5 percent. Load factors for commuters are projected to increase to 55.0 percent by 2012. A constant load factor of 55.0 percent was assumed for international operations at Midway. Historical and forecast load factors for Midway are shown on **Table IX-14**.

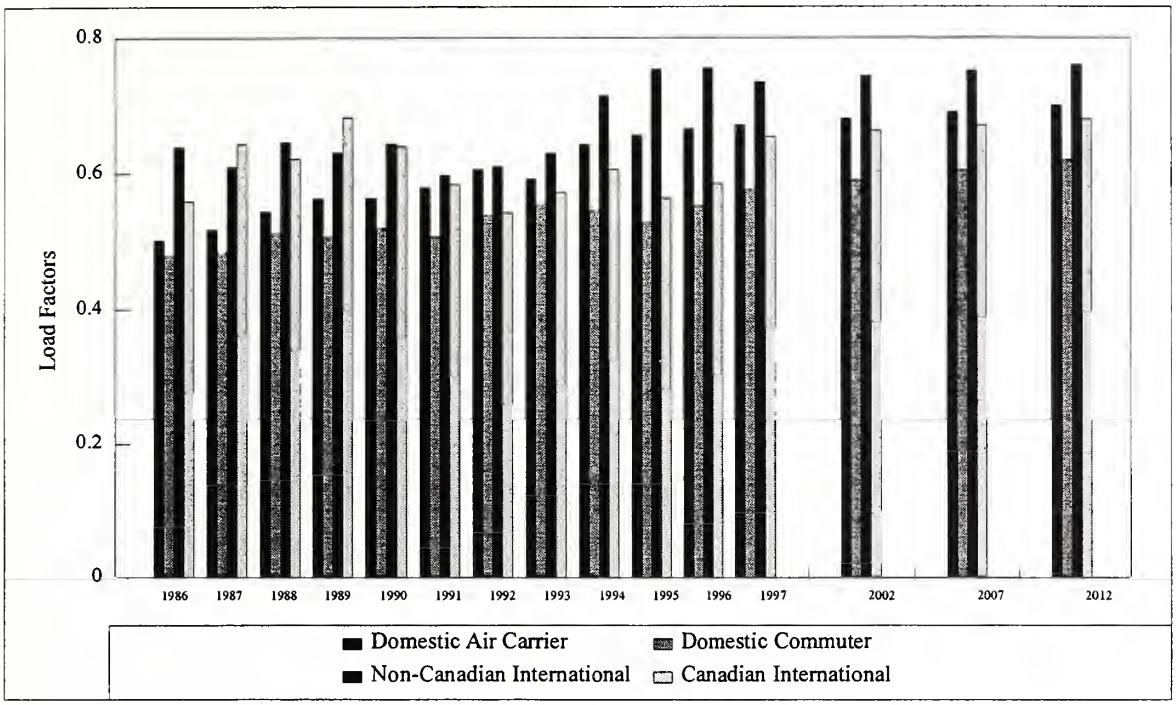
H. AIRCRAFT OPERATIONS FORECAST SUMMARY

Total annual aircraft operations for the current System (i.e., O'Hare, Midway and Meigs) increased from 936,542 operations in 1985 to 1.2 million operations in 1997, an annual average compound growth rate of 2.1 percent (see **Table IX-15**). Total annual operations for the future System (i.e., O'Hare and Midway) are forecast to increase to 1.3 million operations in 2012, an average annual increase of 0.5 percent over the forecast period.

As shown in **Table IX-16**, total annual aircraft operations at O'Hare have increased from 724,155 operations in 1980 to 883,761 operations in 1997, an annual average compound growth rate of 1.2 percent. Total annual operations at O'Hare are forecast to increase to 982,500 operations in 2012, an average annual increase of 0.7 percent over the forecast period.

As shown in **Table IX-17**, total annual aircraft operations at Midway have increased from 210,904 operations in 1980 to 265,572 operations in 1997, an annual average compound growth rate of 1.2 percent. Total annual operations at Midway are forecast to increase to 314,760 operations in 2012, an average annual increase of 1.1 percent over the forecast period.

Table IX-13
Chicago Airport System Forecast
Chicago-O'Hare International Airport
Load Factors



Load Factors

	Year	Domestic Air Carrier	Domestic Commuter	International Non-Canadian	International Canadian
Actual	1986	50.2%	47.8%	64.0%	55.9%
	1987	51.7%	48.4%	61.0%	64.3%
	1988	54.4%	51.1%	64.6%	62.2%
	1989	56.4%	50.6%	63.1%	68.2%
	1990	56.4%	52.0%	64.4%	64.1%
	1991	57.9%	50.7%	59.8%	58.4%
	1992	60.6%	53.9%	61.1%	54.3%
	1993	59.2%	55.7%	63.0%	57.2%
	1994	64.3%	54.6%	71.5%	60.6%
	1995	65.6%	52.8%	75.4%	56.4%
	1996	66.6%	55.2%	75.5%	58.6%
	1997	67.2%	57.6%	73.5%	65.5%
Forecast	2002	68.1%	59.1%	74.3%	66.3%
	2007	69.0%	60.5%	75.2%	67.1%
	2012	70.0%	62.0%	76.0%	68.0%
		Average Annual Compuund Growth Rate			
	1986 - 1997	2.7%	1.7%	1.3%	1.4%
	1997 - 2002	0.3%	0.5%	0.2%	0.3%
	2002 - 2007	0.3%	0.5%	0.2%	0.3%
	2007 - 2012	0.3%	0.5%	0.2%	0.3%
	1997 - 2012	0.3%	0.5%	0.2%	0.3%

Sources: Actual - Department of Aviation Management Records; Forecast - Landrum & Brown, Inc.
Note: General Aviation includes helicopters and miscellaneous.
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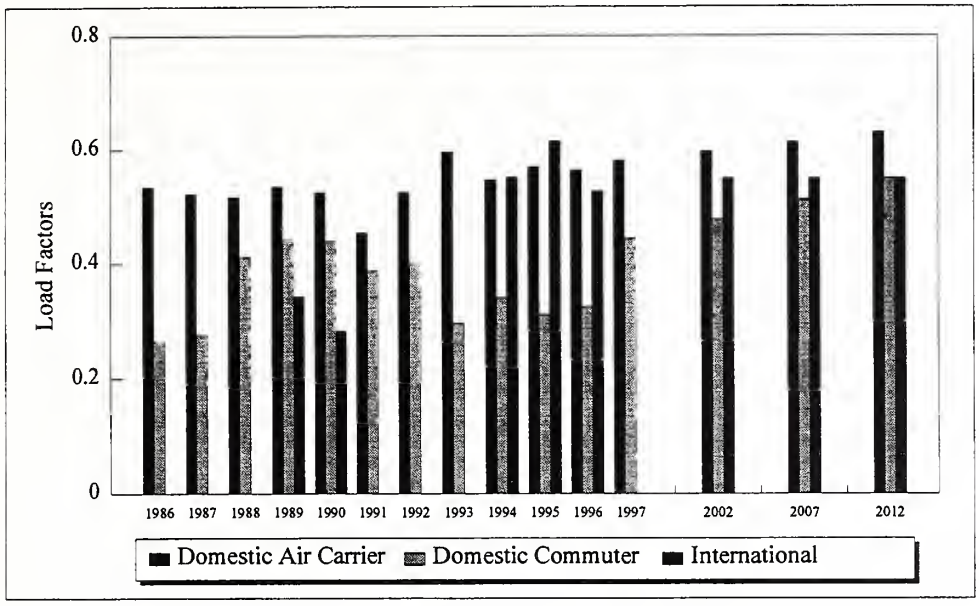
Table IX-14
Chicago Airport System Forecast
Chicago Midway Airport
Load Factors



Load Factors

	Year	Domestic Air Carrier	Domestic Commuter	International
Actual	1986	53.5%	26.5%	n/a
	1987	52.3%	27.6%	n/a
	1988	51.7%	41.2%	n/a
	1989	53.6%	44.2%	34.3%
	1990	52.6%	44.0%	28.3%
	1991	45.4%	38.8%	n/a
	1992	52.5%	40.0%	n/a
	1993	59.6%	29.6%	n/a
	1994	54.7%	34.1%	55.1%
	1995	57.0%	31.1%	61.5%
	1996	56.4%	32.4%	52.7%
	1997	58.1%	44.5%	n/a
Forecast	2002	59.7%	47.8%	55.0%
	2007	61.3%	51.2%	55.0%
	2012	63.0%	55.0%	55.0%
		Average Annual Compuund Growth Rate		
	1986 - 1997	0.8%	4.8%	N/A
	1997 - 2002	0.5%	1.4%	N/A
	2002 - 2007	0.5%	1.4%	0.0%
	2007 - 2012	0.5%	1.4%	0.0%
	1997 - 2012	0.5%	1.4%	N/A

Sources: Actual - Department of Aviation Management Records; Forecast - Landrum & Brown, Inc.
Note: General Aviation includes helicopters and miscellaneous.
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Table IX-15
Chicago Airport System Forecast
Aircraft Operations
Chicago Airport System

	Year	Domestic Air Carrier	Commuter	International Air Carrier	Subtotal Commercial Passenger	Air Carrier All-Cargo	Military	General Aviation	Total
Actual	1990	689,191	245,615	39,875	974,681	14,840	12,077	192,806	1,194,404
	1991	658,963	240,473	40,722	940,158	15,909	5,882	186,802	1,148,751
	1992	641,744	181,735	46,268	869,747	16,324	7,946	188,290	1,082,307
	1993	678,015	176,985	51,922	906,922	16,239	6,208	182,946	1,112,315
	1994	720,639	183,174	53,753	957,566	17,509	5,478	221,335	1,201,888
	1995	726,582	179,187	59,048	964,817	19,216	6,203	213,684	1,203,920
	1996	719,745	174,768	61,899	956,412	20,060	6,449	233,569	1,216,490
	1997	708,084	191,962	66,772	966,818	21,508	4,388	199,321	1,192,035
Forecast	2002	760,800	192,600	76,580	1,029,980	26,200	2,100	165,000	1,223,280
	2007	796,000	197,400	91,020	1,084,420	29,200	2,100	151,300	1,267,020
	2012	832,000	202,400	106,860	1,141,260	33,200	2,100	138,900	1,315,460
					Average Annual Growth Rates				
	1990-1997	0.4%	-3.5%	7.6%	-0.1%	5.4%	-13.5%	0.5%	-0.0%
	1997-2002	1.4%	0.1%	2.8%	1.3%	4.0%	-13.7%	-3.7%	0.5%
	2002-2007	0.9%	0.5%	3.5%	1.0%	2.2%	0.0%	-1.7%	0.7%
	2007-2012	0.9%	0.5%	3.3%	1.0%	2.6%	0.0%	-1.7%	0.8%
	1997-2012	1.1%	0.4%	3.2%	1.1%	2.9%	-4.8%	-2.4%	0.7%

Sources: Department of Aviation records and Landrum & Brown, Inc.
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Table IX-16
Chicago Airport System Forecast
Aircraft Operations
Chicago-O'Hare International Airport

	Year	Domestic Air Carrier	Commuter	International Air Carrier	Canadian Air Carrier	Subtotal Commercial Passenger	Domestic All-Cargo	International All-Cargo	Military	Gen Av	Total
Actual	1980	508,030	113,439	11,585	14,626	647,680	10,190	1,714	3,368	61,203	724,155
	1981	424,629	136,809	10,037	14,120	585,595	8,527	1,846	3,013	46,633	645,614
	1982	387,608	132,059	10,419	13,834	543,920	7,880	2,570	3,466	45,959	603,795
	1983	426,132	132,864	11,547	12,352	582,895	21,237	2,500	3,288	57,360	667,280
	1984	487,714	140,322	15,155	11,950	655,141	21,318	2,526	3,550	49,207	731,742
	1985	518,729	147,110	17,001	13,216	696,056	19,657	2,508	3,454	39,305	760,980
	1986	551,844	145,228	17,920	13,816	728,808	13,840	3,041	3,406	45,843	794,938
	1987	563,204	139,985	20,719	13,647	737,555	12,437	3,851	3,729	35,083	792,655
	1988	564,170	148,683	19,094	14,661	746,608	10,964	3,213	5,478	34,302	800,565
	1989	551,484	152,817	21,286	15,092	740,679	14,657	2,840	3,700	28,962	790,838
	1990	562,957	163,848	22,923	15,624	765,352	11,318	3,522	3,124	26,193	809,509
	1991	551,203	169,170	24,382	16,340	761,095	12,802	3,107	2,827	33,969	813,800
	1992	579,437	161,966	28,530	17,738	787,671	13,732	2,592	3,418	33,684	841,097
	1993	597,519	149,296	32,420	19,502	798,737	14,882	1,285	3,475	41,365	859,744
	1994	599,260	136,636	33,044	20,600	789,540	15,281	1,644	3,327	73,199	882,991
	1995	604,560	146,440	32,844	25,990	809,834	16,339	1,999	3,288	68,819	900,279
	1996	603,172	149,652	33,607	28,206	814,637	16,641	2,543	2,938	72,834	909,593
	1997	586,062	161,318	38,058	28,500	813,938	17,032	3,598	2,170	47,023	883,761
Forecast	2002	608,000	167,200	46,800	29,600	851,600	20,400	4,800	200	42,600	919,600
	2007	621,400	173,400	58,000	32,800	885,600	22,400	5,800	200	35,300	949,300
	2012	634,800	179,800	71,600	35,000	921,200	24,900	7,300	200	28,900	982,500
						Average Annual Growth Rates					
	1980-1997	0.8%	2.1%	7.2%	4.0%	1.4%	3.1%	4.5%	-2.6%	-1.5%	1.2%
	1990-1997	0.6%	-0.2%	7.5%	9.0%	0.9%	6.0%	0.3%	-5.1%	8.7%	1.3%
	1997-2002	0.7%	0.7%	4.2%	0.8%	0.9%	3.7%	5.9%	-37.9%	-2.0%	0.8%
	2002-2007	0.4%	0.7%	4.4%	2.1%	0.8%	1.9%	3.9%	0.0%	-3.7%	0.6%
	2007-2012	0.4%	0.7%	4.3%	1.3%	0.8%	2.1%	4.7%	0.0%	-3.9%	0.7%
	1997-2012	0.5%	0.7%	4.3%	1.4%	0.8%	2.6%	4.8%	-14.7%	-3.2%	0.7%

Sources: Department of Aviation records and Landrum & Brown, Inc.
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Table IX-17
Chicago Airport System Forecast
Aircraft Operations
Chicago Midway Airport

	Year	Domestic Air Carrier	Commuter	International Air Carrier	Subtotal Commercial Passenger	Air Carrier All-Cargo	Military	General Aviation	Total
Actual	1990	126,234	77,916	1,328	205,478	0	2,928	110,088	318,494
	1991	107,760	66,125	0	173,885	0	1,394	105,137	280,416
	1992	62,307	14,107	0	76,414	0	1,466	98,350	176,230
	1993	80,496	22,851	0	103,347	72	1,461	96,653	201,533
	1994	121,379	41,023	109	162,511	584	906	107,170	271,171
	1995	122,022	26,878	214	149,114	878	1,560	105,664	257,216
	1996	116,573	18,504	86	135,163	876	2,388	117,286	255,713
	1997	122,022	26,878	214	149,114	878	1,560	105,664	257,216
Forecast	2002	152,800	25,400	180	178,380	1,000	1,900	122,400	303,680
	2007	174,600	24,000	220	198,820	1,000	1,900	116,000	317,720
	2012	197,200	22,600	260	220,060	1,000	1,900	110,000	332,960
		Average Annual Compound Growth Rate							
	1990-1997	-0.5%	-14.1%	-23.0%	-4.5%	n/a	-8.6%	-0.6%	-3.0%
	1997-2002	4.6%	-1.1%	n/a	3.6%	2.6%	4.0%	3.0%	3.4%
	2002-2007	2.7%	-1.1%	4.1%	2.2%	0.0%	0.0%	-1.1%	0.9%
	2007-2012	2.5%	-1.2%	3.4%	2.1%	0.0%	0.0%	-1.1%	0.9%
	1997-2012	3.3%	-1.1%	n/a	2.6%	0.9%	1.3%	0.3%	1.7%

Sources: Department of Aviation records and Landrum & Brown, Inc.
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APPENDIX A - FACTORS INFLUENCING AVIATION DEMAND

The national and international factors that influence the level and character of aviation demand encompass social dynamics, economics, the environment, technology and circumstances within the aviation industry. This section presents an overview of these key factors and trends that directly influence aviation demand and those that may affect future demand for air travel.

The aviation industry has changed dramatically over the years; airline travel has become more cost efficient compared to other modes of long-distance transportation, and individuals have become more accustomed to flying. Approximately 77 percent of U.S. residents over 18 have flown commercially at least once in their life, and 33 percent have taken an air trip in the last 12 months. A considerable number of factors contribute to the continued acceptance of air travel, including the following:

- Safety - Commercial air travel today is statistically much safer than travel by automobile. Maintaining the safety of flight and the perception thereof is vital to continued air travel growth.

- Fuel - Continued availability and reasonable prices for jet fuel are basic to air travel. While only the most extreme political conditions in the oil producing countries would be likely to cause a shortage/price escalation of oil, such events, albeit relatively short-term, have happened.

- World Economy - A basic assumption inherent in any forecast of aviation demand is the overall condition of the U.S. and world economies. Continued economic stability, reasonable consumer confidence and growth of disposable personal income are foreseen by most economists. All are positive influences on air travel growth.

- Aviation Industry and Market Structure - Since deregulation of U.S. routes and fares in the late 1970s, air carriers have been constantly changing their strategies as traditional competitors and new entrant airlines compete for market share. Trends currently apparent in the airline industry include:

    - Low-fare airlines (i.e., Southwest Airlines) continue to put pressure on industry cost structures and keep the industry price and service competitive.

    - Labor issues remain important as personnel costs are a major part of airline expenses; however, employee ownership at some carriers and compromises between parties have resolved many labor issues in the past, and such compromises will likely continue.

    - Globalization of carriers' route structures and markets is creating new types of business challenges for airlines. Reactions to these opportunities will likely stimulate new growth, particularly within international markets and to/from the United States and foreign destinations.

It can be reasonably expected that a combination of economic, demographic and airline industry factors will directly affect the level of future aviation demand. At the same time, any number of other external political, social, business, aviation industry and abstract factors can, at times, dramatically impact aviation traffic. Such unpredictable future events and/or issues make aviation forecasting a less-than-precise exercise. While such external factors often have a significant impact upon levels of aviation demand, their effect is normally limited to the short-term disruptions of long-

term trends. Critical structural factors related to aviation demand are considered in the overall forecast, which is based upon long-term, identifiable trends that impact air travel demand and the U.S. and world economies, as well as the economy of the Chicago Region.

This section reviews the factors that have been shown to impact the long-term level of aviation demand. A second section addresses issues critical to realization of the forecast. These structural factors provide the framework within which the future demand for air service will occur, and significant change of any of these structural factors could dramatically affect future air traffic demand. It is assumed, however, that many of the identified aviation-related impacts will more likely stimulate, rather than restrain, future aviation demand.

1. DIRECT IMPACTS ON THE FORECAST

The level of domestic air travel correlates closely with three principal factors: economic wealth, population level and propensity to fly. Projections of each of these factors in the forecast models estimate future aviation demand within the Chicago Region.

a. Economic Wealth

The ability of businesses or families to use air travel is related directly to the funds or disposable income available to pay for such travel. During a recession, the growth rate of air travel activity slows or, in extreme cases, actually falls. Wealth, as measured in PCPI, is an integral part of the forecast equation.

The U.S. economy is in a long-running period of expansion. Official government statistics report almost seven years of quarterly growth of Gross National Product (GNP). At the same time, on the national level, inflation and employment are at relatively low levels. Specific periods of national and local economic growth and recession are not projected; rather, the long-term trends are identified.

b. Population Level

The number of people available to fly each year is another forecast variable. Simply stated, passenger air travel normally increases as population increases. As the number of persons residing in an area increases over time or as their wealth increases, more air trips result. The forecast uses population, income and employment statistics to relate past air traffic to projections of aviation activity.

c. Propensity to Fly

The propensity to fly is gauged by the cost to fly relative to other travel modes and the likelihood or willingness of people to fly. While the Consumer Price Index (CPI) (a basic measure of inflation) has risen approximately 45 percent, but the cost of the average airline ticket is up only about 10 percent. These trends have created a situation where an increasing percentage of the U.S. population travels by air each year, and the number of air trips per person per year is also rising.

2. ECONOMIC FACTORS

The following series of assumptions concern national economic and demographic factors that influence the U.S. and world economies and, in turn, the overall level of air traffic.

a. Purpose Of Trip

The trend indicated by travel surveys shows that business travel is decreasing as a share of total travel. A 1993 Gallup/Air Transport Association (ATA) survey found that approximately 48 percent of air trips were for business and approximately 52 percent were for personal/pleasure purposes. The same survey in 1983 found that business trips accounted for about 51.0 percent of total air trips. The trend has been a decrease in percentage of business trips and increase in percentage of pleasure trips. A survey of all travelers conducted by the American Hotel and Motel Association found business travel decreasing from approximately 75.0 percent of hotel stays in 1985 to about 57.0 percent in 1993. The slight changes in the business/pleasure mix are not expected to significantly change the level of air travel because both business and pleasure travel are increasing, while the growth rate of pleasure trips is higher.

The combination of more leisure time, the trend to more but shorter vacations, higher retired population, higher disposable income, greater size of extended families and other factors are increasing the number of pleasure trips. It is logical to assume that this trend will continue with positive consequences, but it is doubtful it will have significant effect upon air traffic in the Chicago Region because it is both a premier business and pleasure destination.

b. Change in National Population Characteristics

Statistics show that people are living longer, a larger share of the population is becoming elderly, minorities are becoming a majority of the population and children represent a smaller share of the U.S. population. Such changes will continue to occur gradually, likely without markedly changing (increasing or decreasing) the propensity for air travel, particularly within the 15-year time horizon of this forecast.

c. Shift in Travel Mode

Just as long distance overland travelers shifted in the mid-1800s from horse and buggy to railroads then later to automobiles and in the second half of the 1900s to aircraft, a shift to a new mass travel mode is possible. However, nothing is foreseen in the 15-year planning horizon that could seriously challenge aircraft for long distance mass transportation. Automobiles are the most serious competition, but air travel retains a fairly high share of travel within the United States for medium and long distances. Bus and rail travel are losing share to auto and aircraft and, for all practical purposes, commercial bus and train travel are inconsequential in today's long-distance mass travel market.

d. Telecommuting

Most observers agree that telecommuting's effect on air travel will be negligible because this concept involves moving only the location of employees' routine day-to-day work. While growth of at-home computers linked with wide-band communication lines is likely to expand, the impact upon long-distance travel is not expected to be substantial. It is possible that these changes in business operations could increase pleasure travel if employees have more leisure time and more control over their schedules as a result of technology advances.

e. Teleconferencing

Some observers believe that the need for trips to different geographic locations will decrease as electronic means replace personal interface. New wide-area computer networks permit persons to edit documents (including drawings) simultaneously; miniature television cameras built into personal computers permit persons to see each other as they talk on the phone; and other picture-phone and computer network applications permit a level of real-time long-distance interaction unheard of in the past. Certain airlines see teleconferencing as a major threat to their business. While implementing these new communication technologies may reduce business air trips, any impact on demand for air travel will be minor.

3. AIRLINE FACTORS

The following issues affect the structure and operations of the airline industry.

a. Airline Financial Stability

The financial health of the airline industry is an important factor influencing levels of air service in the Chicago Region. While the financial health of individual airlines is important, the airline industry in the U.S. and worldwide is assumed to remain stable. The experience over the last 10 years with the demise of such major carriers as Eastern indicates that as one carrier fails, others step in to serve key routes or new carriers are formed to capitalize on the new opportunities. It is assumed that airlines will continue to fly and that new entrants will be formed, resulting in ongoing rigorous competition and continued reasonable airline financial health.

b. Jet Fuel Prices

Fuel prices constitute up to one-third of an airline's operating expenses. Dramatic fuel price increases or cut-off of the OPEC/Middle East oil supply has, in the past, combined with other factors to affect aviation activity levels. Oil price increases or threats of fuel supply reductions quickly increase fares, thereby dampening demand. Few issues are as critical to continued growth of air travel as the supply of jet fuel at affordable prices. Most long-term economic forecasts (such as the FAA's) assume continued availability of jet fuel at reasonable prices.

c. Point-to-Point versus Connecting Air Service

Some industry observers theorize that U.S. airline route systems will shift to all point-to-point service (along the lines of the Southwest Airline model) and away from the current hub-and-spoke configurations. The point these observers are overlooking is the traveling public's desire for frequent, scheduled service. Most city-pairs cannot support nonstop service to more than a fraction of the markets easily reached today by connections through a hub airport.

Historically, roughly 50 percent of U.S. air passengers connect and 50 percent fly point-to-point. The New York-Los Angeles market was the busiest U.S. air route in 1997; this market has point-to-point air service because of its large passenger volume. While some passengers connect on this route, the majority flies non-stop. The only way to travel from Bangor, Maine to Bakersfield, California, however, is via a number of connections. Nonstop air service is not available, and nonstop air service between two relatively small cities at long distances from each other is unlikely because there is not enough demand to economically justify air service by jet aircraft with sufficient range to service the route.

The basic system of hubs and spokes of air travel will remain because this is the most economical method to move passengers and goods between small and medium airports. Major markets with enough passenger demand will have direct air service, and markets without substantial demand will be reached through connections. The continued growth of low-fare, high-frequency air carriers (such as Southwest Airlines) will not significantly affect the ratio of connecting to O&D passengers because the markets that can support high-frequency, direct service are limited, and such service to multiple markets creates more connecting opportunities.

d. Growth of Hubbing

Airlines have always concentrated air service at a limited number of airports, usually in major cities. Since airline deregulation in 1978, there has been an even more pronounced emphasis on developing hub-and-spoke route systems centered on a limited number of airports. For example, United Airlines operates hubs at Chicago-O'Hare, Denver and Washington Dulles; American operates connecting hubs at Dallas-Fort Worth and Chicago-O'Hare; and Delta operates hubs at Atlanta, Cincinnati, Dallas-Fort Worth and Salt Lake City. Each of these carriers has minor hubs at other locations. For international air service, such hubs (or gateways) are even more pronounced.

The hub-and-spoke route networks offer the most economically efficient system to move passengers and cargo throughout the country. For most international service, using hubs as gateways is almost the only way to provide the economies of scale sufficient to operate long-range, high capacity aircraft across the Atlantic, Pacific or to other distant international destinations. No significant change in the hub-and-spoke system is foreseen in the forecast period. However, new routes and new service points will continually be developed as markets expand and as new carriers appear, new marketing niches emerge and other events that expand the world travel market. Furthermore, the identification of hubs themselves may change as airlines

switch strategies; for example, Raleigh-Durham and Nashville are no longer major American hubs, and US Airways has ceased hubbing at Dayton.

e. Growth of Low-Fare, High-Frequency Air Carriers

Low-fare, high-frequency and point-to-point service airlines have grown in recent years. The best examples of this type of operation are Southwest Airlines and "Shuttle by United," which was introduced to counter the "Southwest effect." While Southwest is often credited with creating a market, the market demand existed long before Southwest began service. The question to be answered is whether the U.S. air market is shifting to low-fare, high-frequency and point-to-point service and away from traditional airline operating techniques.

The answer to this question involves addressing several ways the airlines operate. Since deregulation, many changes have occurred in the airline industry. Industry concentration has increased, with United, American and Delta becoming the three domestic giants, and fares have dropped noticeably, particularly in markets in which Southwest competes.

High- frequency service has always been the standard in high volume markets; for example, shuttles have operated since the 1960s between Washington, New York and Boston, and hourly service on both United and American has existed between New York and Chicago for more than 20 years. Point-to-point seems to be the only practical method of operation in high volume markets. The most significant impact of the current competition for passengers in short-haul, point-to-point markets is the trend to use air travel rather than bus or automobile. This low-fare, high-frequency trend is believed to have a stimulating effect, but it does not indicate an identifiable change in the overall historical method of airline operation.

f. All-Cargo Express Carriers' Impact on Air Passengers

Since FedEx was founded nearly 30 years ago, the overnight package delivery volume has doubled and tripled every few years. It is not likely that the continued growth of the overnight express air cargo carriers will limit or compete with passenger traffic. The overnight express carriers operate at night so they do not compete with air passenger operations or reduce capacity to serve passengers, nor are the contents of the packages believed to materially affect the number of air passengers.

The overnight package carriers indirectly benefit the passenger carriers because these air cargo firms purchase the older model aircraft as they are retired from passenger service. The use of airports at night by express carriers also lowers airport costs for the passenger carriers because, in most cases, airports operate on a break-even basis financially and are able to spread the cost over a larger number of users.

g. Mergers and Acquisitions

FAA records indicate that, from 1980 to 1994, 123 airlines ceased operations. Only two air carriers founded in the first year of airline deregulation are still operating

(FedEx and Midwest Express). It is assumed in this analysis that competition will remain and even intensify in the airline industry globally.

While many air carriers have gone out of business, new carriers continue to be formed. Of the major carriers operating at the start of the 20-year historical period since U.S. airline deregulation, Eastern and Pan American have gone out of business and Flying Tiger, Piedmont, Republic and Western, among others, have merged with other airlines. Several new airlines, such as Southwest and FedEx, have become major airlines during this period, and continued turnover of carriers is to be expected.

h. New Methods of Selling Airline Tickets

The ATA reports that travel agents now sell more than 90 percent of the airline tickets and receive commissions and other payments that represent approximately 10 percent of the ticket price. In a period when almost all other airline costs have been reduced significantly, commission fees represent a real expense to the airlines. Therefore, several carriers are experimenting with ways to reduce travel agency fees. New methods of selling and/or distributing airline tickets, such as automated vending machines and ticketless travel, are not likely to affect future passenger demand levels; however, consumers may realize lower ticket prices.

In further response to the high cost of air ticket distribution, most airlines recently unilaterally cut top commission fees to travel agents. Other airlines are experimenting with alternative reservation and ticketing methods that either reduce the direct airline cost of ticketing or eliminate the travel agency as the "middle man." Over time, it is uncertain which, if any, of these new ticketing systems will work. Any method of reducing promotion and sales expense will likely benefit the airlines and consumers because lower airline costs usually result in lower ticket prices. It is assumed that more efficient reservation and ticketing systems will benefit both airlines and consumers.

i. Airline-Labor Relations

All major or national airlines have unions; even low-cost Southwest employs union pilots, station personnel and mechanics. Others in the aviation industry, such as ground service workers and airport employees, often belong to unions. Since deregulation, airlines generally have had rather strained labor relations as management has tried to cut costs and unions have resisted changes in wages, benefits and working conditions. The conclusion of most analysts is that, over time, unions and management will agree that it is in both parties' best interest to negotiate workable arrangements; upward labor cost pressures on air fares should be moderated as a result.

j. Shift of Passengers to Regional Carriers

In the past 15 years, the number of regional (commuter) airline passengers has doubled as a percentage of total commercial air passengers. In 1997, more than 10.0 percent of domestic air passengers flew on regional airlines rather than traditional

major commercial carriers. Most forecasters see the shift to regional carriers continuing. Several factors influence this trend, including the following:

- Integration of Ticketing/Schedules - Most regional carriers are tightly affiliated with or owned by one of the major carriers. As a result, schedules, ticketing, reservations, airport facilities and inflight services are seamless between the two types of carriers, eliminating previous barriers to passenger access to commuter service. New ownership and organizational structure changes forced upon regionals by their major carrier partners have improved the regional carriers' access to capital. This new ability of regional airlines to fund expansion (i.e., new aircraft) has eliminated one of the major constraints to regional carriers' growth.

- Aircraft Types - Regional carriers have shifted most of their flights to modern, pressurized and generally larger turboprop aircraft staffed by flight attendants. In addition, many of the regional airlines are introducing small jets like the 50-passenger Canadian Challenger into their fleets, increasing both the range and quality of service.

- Route System - Prior to deregulation, only very small cities with thin passenger density saw significant regional airline service because major carriers serviced these routes on a cross-subsidized basis. Today, almost any route of 300 to 400 miles can be served more cost and time efficiently by a regional carrier. Use of regional aircraft lowers costs and provides more service frequency, which is the key to increasing demand and airline market share. On longer routes, up to 1,500 miles in less dense markets, the new regional jets provide nonstop service for the first time or replace older, less efficient types of larger jet aircraft.

In general, there has been a fundamental shift from high cost major carrier jets to lower cost regional aircraft to markets with lower demand. Regionals have retained and expanded their historic role of service to small cities and have expanded service to larger niche markets. Continued expansion of the route structures and market shares of major airline affiliated regional carriers is foreseen.

4. AIRCRAFT

The following factors may affect the type of aircraft that may use the airports in the System.

a. Phase Out of Stage II Aircraft

All aircraft operating in the United States must meet the Stage III noise requirements by December 31, 1999. European carriers have until 2001 to meet this requirement within the European Economic Community. This means the current fleets of aircraft, such as the Boeing 737-200, Boeing 727 and Douglas DC-9, which only meet the Stage II regulations, must be retired or modified to meet Stage III noise criteria.

It is assumed that phase out of Stage II aircraft will have little effect on air service. All of the largest U.S. carriers have plans to either purchase new aircraft or retrofit

existing aircraft before the deadline. All other airlines and suppliers, such as the aircraft manufacturers, are aware of the law and are acting to comply. Several of the major carriers have indicated that they will comply with the law before December 31, 1999. The likelihood or need for the U.S. government to grant exemptions is remote, but the legislation provides for such a possibility. Phase out of Stage II aircraft does not appear likely to hinder the future growth of aviation demand.

b. Aging Aircraft Fleet

The U.S. commercial aircraft fleet is aging. Older aircraft are generally more expensive to operate and maintain than newer models. Most experts today assume a 25-year life for jet aircraft airframes. The national carriers average an older fleet than the majors, and 19.0 of the world's aircraft is older than 25 years, less fuel efficient than current models or staffed by more expensive three-person flight crews. Airline response is mixed. For example, extensive fleet replacements are occurring at United, and Northwest is refurbishing older aircraft. Delta is replacing smaller aircraft with those with larger capacity and US Airways is substituting new regional/commuter aircraft for older jets on short-haul routes. These and other steps will not likely create service disruptions.

c. Change in Aircraft Size over Time

Airport planners must consider means to accommodate future aircraft dimensions and operating requirements. Over the 15-year planning time frame, the size and type of aircraft in airline fleets will change as aging aircraft are replaced. Other types of new aircraft are possible, the most important of which, from a planning perspective, is the proposed new the super jumbo, which could carry 500 to 600 passengers; current 747-400s carry 350 to 400 passengers.

d. New Jet Engine Emission Regulations

New regulations to restrict the emission of nitrous oxides and other products of combustion from jet engines are likely to be made effective by both U.S. and foreign governments over the next 15 years. It is assumed a phase-in period will be developed for new regulations so that the airlines can plan for and meet the new standards. Both U.S. and foreign governments are likely to require further reduction of aircraft engine emissions; therefore, jet engine manufacturers are working on modified combustion technology and other ways to reduce emissions. Reduced engine emissions will have no impact on passenger demand, but will reduce the environmental impacts of aircraft operations.

e. New Long-Range Aircraft

Air carriers and routes over the Pacific, once dependent on the range of the commercial aircraft fleet, no longer need to schedule aircraft refueling stops in Hawaii or Alaska to serve destinations in the Far East. The Boeing 747-400 and 777-200, McDonnell-Douglas 11 and Airbus 340 all have a non-stop range of over 7,000 nautical miles. While longer-range aircraft may be developed and new non-stop destinations made accessible, such change should not change the overall

patterns of air service. The newest 400 version of the Boeing 747 and MD-11 update of the DC10-30/40 serve to eliminate fuel stops rather than change the air service patterns.

5. INTERNATIONAL

In addition to the economic, domestic industry and other factors described previously, international air traffic will be affected by additional factors that are discussed below.

a. Privatization of Foreign Carriers

Many foreign flag airlines are currently owned, wholly or in part, by their respective national governments, making them, to some extent, instruments of national policy rather than strictly for-profit enterprises. National prestige or political interests influence international air service to some degree on matters including subsidizing money-losing routes, hiring superfluous employees and purchasing aircraft and equipment from governmentally preferred manufacturers.

The fact that foreign governments own and/or control their national airlines has had little impact upon the Chicago Region in the past. As European countries have deregulated flag airlines, these carriers have generally become more efficient and effective competitors. Over time, it is likely that ongoing privatization efforts of foreign flag airlines will result in better and lower-cost international air service at O'Hare.

b. Impact of NAFTA on Air Travel

The North American Free Trade Agreement (NAFTA) treaty between Canada, Mexico and the United States eases restrictions on doing business across the borders. The agreement will remove most tariffs and other artificial barriers to trade within the next six years. The treaty's goal is to make a common economic union between the United States and two of its largest trading partners.

The three countries form a contiguous geographic area with a population of almost 400 million. With a population 50 percent larger than that of the United States, the combined market has the potential to enhance U.S. economic competitiveness with the EEC and Japan. The consensus of many economists appears to be that NAFTA and other free trade agreements (such as the GATT) will stimulate world economic growth. Greater economic vitality will stimulate both domestic and international air traffic.

c. Joint Ownership/Code Sharing

Two recent trends on the international aviation scene are joint ownership and code sharing. Joint ownership involves equity linkage between foreign and domestic carriers. The foreign voting ownership of domestic carriers currently is limited to 25.0 percent. Code sharing involves double listing of flights under both a foreign and domestic carrier's two-letter identification code. For example, passengers on a listed flight from Chicago to London are ticketed as a United flight, but Lufthansa

provides the aircraft and service. This joint ownership and international partnership arrangements, or code sharing, are intended to make international air travel more seamless for the passenger; when successful, these arrangements should help increase passenger traffic.

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